THE BUILDER

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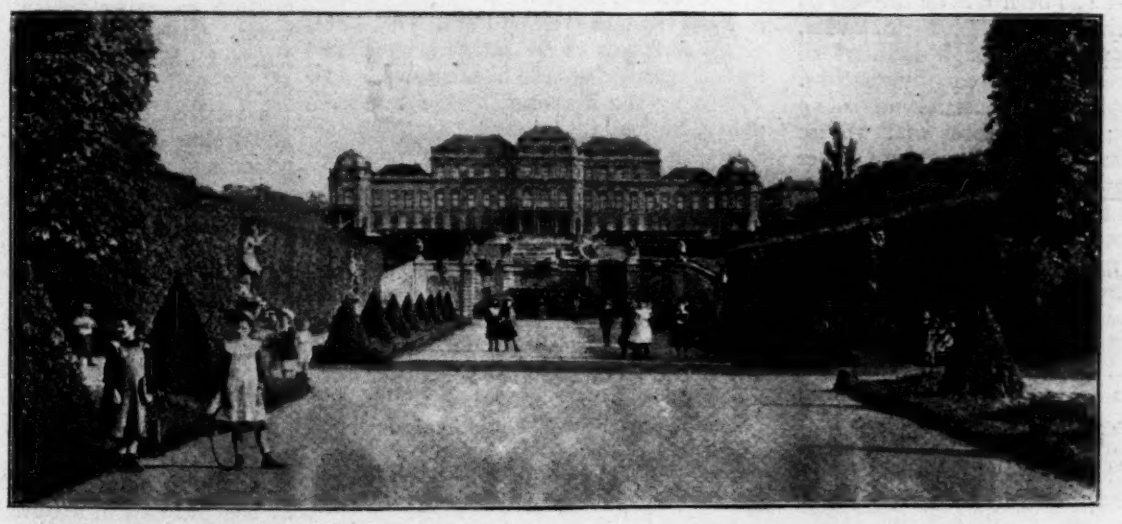


Belvedere Gardens, Vienna.

THE TOWN PLANNING CONFERENCE.

THE forthcoming Town Planning Conference will be opened under the happiest auspices. It has the King for Patron and a lengthy list of Vice-Presidents—a little excessive perhaps for practical purposes—comprising the names of great landowners, artists, and other persons of distinction. For President there is the head of the Local Government Board, a Minister of wide sympathies and independent culture. Sir Aston Webb is Chairman of the Executive Committee, and Mr. John W. Simpson the Secretary-General, who has Mr. MacAlister and a host of ready helpers at his back in his work of organisation. Mr. Simpson has performed wonders. The fixed date of the Conference having been postponed, and rightly postponed, owing to the death of one of the most admirable of constitutional monarchs, the month of October was chosen. An autumnal month for so important a gathering was, in many respects, not altogether a happy choice; but Mr. Simpson, at the request of Mr. Leonard Stokes, the new President of the Institute, accepted the head of the organising task, and the successful result of his labours will, we believe, be apparent next week.

But every Conference or Congress of the sort, if carried to a successful issue, is a feat in organisation. There are, however, many important reasons why it is desirable that the present Conference should not be marred by any spirit of lukewarmness or failure. It is, for instance, the first direct public association of the architectural profession collectively in this country with a matter which is of first importance to the public. It indicates, we hope, among other things, that the architect is coming out of his shell. Architects individually are for the most part reticent in regard to their art and disinterested in its practice. No other body of artists are contented to work so unostentatiously, so far as popular appreciation is concerned. And this sentiment of diffidence is, as every architect responsible for a large public building knows, encouraged almost to the point of humiliation by the Press of this country. The author, for example, of every pot-boiling novel claims at the hands of the modern editor or journalist a wider fame — frequently a larger monetary reward—than he. The fault is not altogether with the journalist. He merely does not know. One of the possibilities of the present Conference is, we hope, that it may instruct him a little.

But the ideas which lie behind town planning are far-reaching and naturally of the greatest importance to all of us,

Far-reaching as they may be, involving issues which we will touch upon presently, they cannot be rightly carried into effect without, not only the aid and co-operation, but the direction of the architect. Take an instance: A town convenient for traffic, with plenty of room for pedestrians, with streets radiating to useful centres, may expedite the momentary needs of a special messenger; but it will scarcely do more than that without questions beyond mere convenience are taken into account. A street planned on inconvenient lines, flanked with interesting architecture—that is, considered work achieved by the brains and hands of man—is a more desirable possession for a community than a well-planned thoroughfare threading indifferent buildings. We are not leaving out the problem of sanitation because it is, in either case, susceptible of adjustment.

The readjustment of a town is usually due in the first instance to a sociological necessity. The crowding of population, or the needs of commerce, demand it. Within the last hundred years or so, since the beginning of the industrial era, communities have got a little out of hand. It has been necessary for the wage-earners to live in the neighbourhood of their work. And under the spell of a new force, of a new spirit, the employer has been a little careless as to the environment of his employees, and the employee, through indifference or ignorance, has been equally careless. But this spirit of industrialism is no longer new; manufacturer and worker alike have had time to think. Mr. Lever and other enterprising and large employers have paved the way to a better condition of things, and others are ready to follow. From the merely commercial aspect, a workman in decent surroundings, with pure air and reasonable opportunities for healthy recreation, is of greater commercial value than a workman who lives in an insanitary dwelling and a fetid atmosphere. But we need not fear that this phase of the question will be overlooked next week. The sociologist is at work; he has captured the imagination of most thinking people. We have, or we shall have, Port Sunlights and Bournvilles in plenty; the force behind this movement is irresistible; it will go on and the land shall rejoice thereat. It forms an incidental and progressive phase of town planning.

Then there is the Garden City. Man is a gregarious animal. In the Garden City he becomes absorbed in a small community which responds to his social needs. In the town where is he? Where is he, let us ask, in a great city like London? The Garden City life appeals to the man with a small income and healthy instincts. This type of man is, above all, an idealist. His standard of life is on the whole broad and philosophic. He is a type, he represents a class.

In great cities the community is composed of more various elements. Its members may possess any income from twenty thousand a year to nothing; it is composed of millionaires, of the professional class, of artists and paupers. These may perhaps be broadly distinguished from the Garden City type by certain individual, even non-social qualities. In a great city a man can be selective in his choice of society; in a Garden City he is dependent upon the social opportunities of his immediate neighbourhood. In a great city a man has no neighbours. That is one aspect of the case. Another is the individual choice of man—he likes the city life for its own sake. The sister of probably the most distinguished essayist of the end of last century expressed her liking for the country by saying that it was "so umbrageous"; whereas Mrs. William Bell Scott (whom old inhabitants of Cheyne-walk will remember) preferred the town for its lamplights. The town is a place for intellectual action, the country for intellectual and philosophic reflection. However this may be, the vast communities which inherit our great cities indicate that they possess an attraction as dwelling-places; and their inhabitants form the larger part of the national population. To persons of this type the moral and intellectual value of a finely-designed thoroughfare is incalculable. The streets of Paris in its best days provided just as great an impetus to artistic thought as the works of art on the walls of the Louvre or the Luxembourg. No man can walk the fine "Rings" at Vienna without feeling a certain spiritual lift and generous respect for his kind. Both in Paris and at Vienna the importance of an architect as an artist is realised by all classes of the community. At Vienna by the Emperor, by the municipality, by his brother artists.

We do not wish to discuss the literature of town planning, but every student of architecture knows that almost every architect from Vitruvius to Wren concerned himself with the disposition and arrangement of cities. That was the era of the architect before the archæologist stepped in. Such considerations in a greater or lesser degree necessarily form indeed part of the intellectual equipment of every architect. Every designer of a large public building is *in esse* a town planner: he has provided the vanishing or culminating point to a vista, the radiating point for traffic, or the central object for a *grande place*. No scheme for the readjustment of London would, we imagine, be considered for a moment which did not place in evidence the buildings of Wren, of Chambers, of Barry, of Street, and other architects of works which are not only adornment to London, but finger-posts in the march of our national civilisation.

The Conference will no doubt take these things into consideration. The problem confronting the town planner involves both sociological and æsthetic considerations. In the place of Royal patrons and great landowners of other days, the architect to-day has largely to deal with democratic communities, which may be remotely compared to those of Italy at the Renaissance. And the power of the architect of the future will be drawn from the same liberal ideas (we are not using the term in a political sense) which occupied the minds of their great predecessors, of Vitruvius, of Alberti, of Perrault, Wren, and others when considering a question which is not of importance only to one profession or one class, but to all professions and all classes.

NOTES.

King's Memorial Scheme, Liverpool.

We note with pleasure that our opinion on this matter, and our grounds for that opinion, are shared by Professors Reilly and Adshead, of Liverpool; and we trust that the information which has reached us, that the scheme has been abandoned—doubtless in no small measure owing to their distinguished opposition—is true. In Professor Reilly's words—"Even if it could be shown that such a scheme as that suggested were part of the architect's original proposal, changed on mature thought—and I have a print showing subsidiary staircases, but to a very different scale, and with pedestals and statues at the two ends instead of in the centre—I, personally, should be very loath to see anyone alter the finished work of such artists as Cockerell and Elmes; but, without such evidence, for us, in a weaker age, when the spirit of classic art is so little understood, to lay hands upon our greatest monumental building is little short of sacrilege." We believe "such evidence" exists. Nevertheless, we adhere to our opinion as expressed in our issue last week. On another count we find Professor Adshead in accord—"Glancing at Mr. Goscombe John's War Memorial on the west side we should recognise that Mr. John is one of our cleverest exponents of realistic art, a type of expression which is entirely opposed to the principles of Cockerell and Elmes. Cannot a site be found somewhere in an open space where Mr. John's work would stand independently?" As we suggested last week, there is the set-paved waste by the Pier Head.

Liverpool Cathedral.

The main problem for competitors in making designs for the Cathedral was how to obtain a great central space at the transept of a Gothic design. Mr. Scott, though not the most successful in solving this, was entrusted with the work on the merits of his design. We now learn that he has devised greater space for congregational purposes. According to the *Times* report, a suggestion was submitted by Mr. Gilbert Scott to alter the original design of the Cathedral in a manner which he thought would add to the architectural effect of the building and would also provide a larger central space for great popular services. It has always been the feeling of the Bishop of Liverpool and the Committee that a larger space would be needed than that provided, evening services in the naves of our cathedrals being exceedingly popular and largely attended. The alteration in the scheme will involve a great central tower in place of the twin towers in the original design, and some other modifications. Mr. Scott was instructed to prepare a perspective drawing carrying out his suggestions, which very much commended themselves to the Executive Committee; and the consideration of the scheme was postponed to a special

meeting. As we have not yet seen the reconsidered design we can offer no opinion on its merits from an architectural point of view. But if the single large tower—it seems as though it must be very large indeed—forms as original, powerful, and dignified an effect, in combination with the general mass, as the twin towers of the present design assuredly would do, any amendment in the design towards rendering the structure more apt to its purpose can but be welcomed.

The Quadriga for Constitution-hill Arch.

We this week include a plate illustrating Captain Adrian Jones's quadriga for the Constitution-hill Arch at Hyde Park-corner, and we give on this page an illustration of the arch as originally designed. From this it will be seen that Captain Jones's quadriga is at least four times the size of that proposed by the architect, and we share a very widespread doubt as to whether it is not out of scale with the design of which it is to form a part. Might it not have been wiser to have had some experimental model or profile exhibited in position on the top of the arch for a time, so that the opinions of those qualified could have been gathered as to the suitability in scale and treatment of Captain Jones's monumental work?

The Institute Premises.

It is generally known that the Royal Institute of British Architects have recently become the owners of the property in Conduit-street, not only of the old building which has been familiar to architects for many generations, but also of the adjacent galleries at the rear of the building. During the last few months a scheme of alteration and reconstruction, chiefly with regard to the galleries, has been in progress, for which Mr. Henry T. Hare, the Honorary Secretary of the Institute, has been responsible. Members of the Institute, who are also members of the Town Planning Conference, will have on Monday the first opportunity of viewing the new premises since the alterations have been completed. Later on there will, we understand, be a formal opening by the President, at which it is hoped there will be a good attendance of members. Meanwhile, we are at liberty to congratulate Mr. Hare on the successful result of his work, which must have been performed at some pressure in regard to time. He has not only provided the Institute with a most excellent meeting-room, which will accommodate, under less draughty or less suffocating (one could never be quite sure which) conditions, a much larger audience than was possible in the library; but he has also provided two of the best-lighted and most shapely of the smaller galleries in London. These will be of service to the Institute at examination and other times. We would suggest also (and we will refer to this at greater length later) that they might also usually serve for an annual exhibition of contemporary architecture. Architects, who are not Academicians, and lovers of architecture, who are neither Academicians nor architects, have often enough realised that the space allowed for the display of architecture at Burlington House is neither adequate nor dignified. Apart from these considerations, architectural drawings, when viewed in competition with pictures which are not illustrative but independent works of art, are seen at a considerable disadvantage. It is difficult for the spectator, after going through travail of a large number of preceding galleries, to accommodate himself to the point of view in which it is necessary to understand an architectural drawing. The new galleries at the Institute suggest many possibilities in this direction. The alterations have left the library on the first floor pretty much as it was. The library is not only the most valuable asset of the Institute (excluding the whole premises), it is also a sort of chamber of archives which preserve the great tradition of architecture into which students both young and old (if one may distinguish in this matter among students) can dip with advantage. Under the conditions which are coming into operation it is hoped that the student may be able to indulge in the scholastic quietude which is usually considered necessary in the pursuit of abstract knowledge.

Minerals and the Finance Act.

In one of the papers read at the recent annual provincial meeting of the Law Society the writer seems to have made a statement that common clay, common brick clay, common brick earth, sand, chalk, limestone, and gravel are only exempted from Mineral Rights Duty, but for all other purposes of the Act they are to be deemed "minerals." We venture to think that this statement is not correct, as the author of the paper only referred to sect. 20, subsect. 5, and appears to have based his assertion on that subsection alone. In sect. 22, which contains the "special provisions as to increment value duty and reversion duty in the case of minerals worked or leased," the exemption of the above substances is again secured by subsect. 8. The only cases in which they are not exempted appears to be where they are not composed in a running lease or being worked, but in such cases they shall be treated "as having no value as minerals unless the prospector of the minerals in his return furnished to the Commissioners specifies the nature of the minerals and his estimate of their capital value" (see sect. 23, subsect. 2).

Hadleigh Castle and the Salvation Army.

The Salvation Army is apparently about to broaden the basis of its activities—another form of salvation, and one appealing to architects, as such, is to be taken in hand. The Army have, it is stated, resolved to repair the ruins of Hadleigh Castle near Leigh-on-Sea, and have requested the Society for the Preservation of Ancient Buildings to give them their advice. The Society are accordingly sending down one of their architects to make a report as to what is best to be done. Nothing in the nature of restoration will be attempted, the work to be done being entirely preservative. It is certainly creditable to the Salvation Army that they should have appealed to the Society for help in a matter which they could not be expected to understand.

The Auld Brig of Ayr.

Since the renovation of the Auld Brig of Ayr various cracks have been noticed in the parapet wall. However, after careful examination the architect and engineer have come to the conclusion that these are purely local and superficial, being due to expansion and contraction. The cracks are situated at the top of the parapet, and we are glad to learn that

Entrance to King's Palace, Hyde Park Corner.

there is no indication of settlement in any part of the structure.

Lectures in Reinforced Concrete.

WE desire to call attention to the course of five University of London lectures on "Reinforced Concrete," to be given by Mr. W. Dunn, at the Institution of Civil Engineers, Great George-street, Westminster, on dates given in our "Miscellaneous" columns. The subject is one of first importance to architects and engineers, and the fact that it is to be treated by so able an exponent is our reason for drawing attention to the course.

The Architectural Association Syllabus.

WE print on another page the Architectural Association Syllabus of meetings for the new session, and in calling attention to an interesting list of lectures we may remind our readers that the Association's fortnightly meeting will in future be held on Mondays, instead of Fridays. One interesting experiment to be tried this session is the inclusion of debates for the Debating Section of the Association (the old Discussion Section) in the fortnightly programme, which, we presume, means the extinction of a separate Debating Society within the ranks of the Association. This, we believe, will be to the advantage of the Association, especially as the debate nights* are to be of a more or less informal character, when smoking will be permitted and the representatives of the Press will not be present for the purpose of reporting. The separate existence of a strong Discussion or Debating Section within the ranks of the Association was something of an anomaly, and the alteration should prove a success, especially with such facilities for enjoyable debate as will be afforded.

ARCHITECTURAL EDUCATION AT HOME AND ABROAD.

BY ALFRED W. S. CROSS, M.A.

Part XV.

OF special service to those students of architecture whose preliminary education falls below the standard required for a University career, the Department of Architecture at the Massachusetts Institute of Technology provides an excellent object lesson in demonstrating how much can be done to encourage earnest, continuous, and systematic study. Wisely recognising the educational limitations of its students, the first year's course of instruction in architecture is devoted to the organisation and consolidation of the general knowledge essential to the proper understanding of the strictly technical studies included in the second, third, and fourth years' courses.

Applicants for admission to the department of architecture are required to have attained the age of seventeen, to have passed satisfactory examinations in Algebra, Plane and Solid Geometry, Physics, French (elementary), German (elementary), English, and History, and also to present evidence of preparatory work in two other selected subjects.

The complete course of study has been framed not only to enable students who take it to become properly equipped for their years of work as subordinates, during which accuracy and rapidity of draughtsmanship and a sound knowledge of design and detail will be their most useful assets, but also to qualify them to become successful members of their profession when, later in life, they commence independent practice.

It recognises that architecture is essentially a fine art, and that its successful practice demands the possession of a broad general cultivation, a liberal training in design, and a thorough knowledge of the principles underlying sound construction. The framers of the curriculum of the Course in Architecture have also realised that in a profession of so many aspects the true function of school training is, primarily, to inculcate high ideals and to prepare the foundations upon which the student is to erect his superstructure of architectural capacity; that the student's mind must be educated to reason and to think clearly and logically, his sense of beauty trained and educated, his imagination stimulated, his point of view made flexible, and his skill in expression, in the conventional medium of the profession, cultivated.

Architecture demands a professional equipment that includes artistic and historic studies in an even larger measure than those purely scientific, and the prominent position which general culture holds in the course is shown in the large amount of time given to studies directed towards the acquisition by the student of broad and enlightened views on subjects merely incidental to his technical qualifications.

The professional work begins with Drawing from the Cast and from Life, growing in importance through the four years until, in the graduate year, Decorative Figure Design is studied in its varied relations to painting and sculpture. Supplementing this there are courses in Water Colour, Pen, Pencil, and Colour Rendering, and Modelling. Design and Architectural History are taken up simultaneously, and a course in Shades and Shadows is given concurrently with the study of the Orders, so that the student begins at once to get an appreciation of what architecture stands for, learns the proper use of precedent, and realises the importance of light and shade as factors in the composition of design. The practice of design is in charge of instructors who are actively engaged in their profession, and the History of European Civilisation and Art is given in recognition of the necessity of a broad, æsthetic, and historical training, which is as important as Architectural History itself in enabling the student to grasp fully the essential spirit of Classical, Gothic, and Renaissance art.

Scientific construction is continually becoming a more necessary part of the architect's profession, and at the Massachusetts Institute the student's training is such as to enable him to master the usual structural questions. For his office practice he is taught the different methods of Perspective, receives practical instruction in Heating and Ventilation, and in the study of Working Drawings and Specifications, and is thus able to take advantage of practical routine work immediately he has graduated. A course in Building Stones, specially prepared for the architectural student, describes the varieties and properties of stone used in building and decoration, their proper uses and distinguishing features, and methods of quarrying, dressing, etc.

For those who prefer the constructive to the æsthetic side of architecture, Option 2 (Architectural Engineering) has been introduced. This option meets the demand for men specially trained in the practical details of modern construction. Its course of study is the same as Option 1 (Architecture) to the middle of the third year, the general architectural training which the student has had being an important aid to him in his future career. His field of employment will be broader for this knowledge, for, as an architectural draughtsman, his familiarity with the uses to which a building is to be put and his ability to take part in the regular routine of the architect's office will make his services additionally valuable.

In both options opportunities are offered for one or two years of graduate professional work, and the value of the continuous and uninterrupted study which it is thus possible to obtain in these graduate years at a period when the student is best fitted to receive it cannot be overestimated.

The studies begin with Freehand and Mechanical Drawing, and the Descriptive Geometry which, later, is to aid in solving the problems of Shades and Shadows, Stereotomy, Perspective, etc. Courses in Applied Mechanics, Graphic Statics, and Strength of Materials prepare the way for professional work in constructive design, which teaches the application of the principles already learned to the solution of structural problems likely to occur in modern practice.

Tuition on the materials used in building, and on the preparation of working drawings and specifications, is carried far enough to enable the student who has graduated on the completion of the course to take advantage of any opportunities of professional work that may offer themselves.

The course on the Influence of Materials on Architecture deals with the methods of construction resulting from the building material used, and the constructive principles involved in the growth of the great architectural styles. Those on the History of Architecture afford instruction in the principles governing design in Classic, Mediæval, and Renaissance work, and the proper use to be made of precedent. The importance of a broader æsthetic and historical training is also recognised, and amply provided for in the history course on European Civilisation and Art, and in the course on the Historical Development of Ornament.

Four years' instruction in Freehand Drawing, from the cast and the living model; a year's course in modelling; and the extended courses in water colour, and pen and pencil drawing, which are based, as far as possible, on architectural subjects, enable the student to associate at once the principles of draughtsmanship with architectural form.

Option 2, the specialised course in Architectural Engineering, includes advanced courses relating to Applied Mechanics, the Theory of Structures, and practical problems in Structural Design.

The instruction in Landscape Architecture, offered as a Graduate Course, is mainly devoted to Architectural and Landscape Design, Landscape Horticulture, History, and to the necessary branches of Civil Engineering, Geology, and Biology.

Opportunities are given for one or more graduate years of advanced study, to be spent in professional work, which lead to the Master's degree.

The student is strongly advised to spend part of the summer in an architect's office, for this practical experience is a great aid to him in the clearer understanding of his school work.

Holders of the Bachelor's degree of the Institute are admitted as candidates for membership of the American Institute of Architects, without being required to undergo the usual examination.

The terminal work of each year is arranged as follows, viz.:—

FIRST YEAR.—*First Term:* Mathematics; Plane Trigonometry; Inorganic Chemistry; Chemical Laboratory; Mechanical Drawing and Descriptive Geometry; Freehand Drawing; German; Rhetoric and English Composition. *Second Term:* Shades and Shadows; Mathematics; Mechanical Drawing and Descriptive Geometry; Modelling; Freehand Drawing; French; English; United States History.

SECOND YEAR.—*First Term:* Elementary Design, Elements of Architecture; Architectural History; Specifications and Working Drawings; Freehand Drawing; Perspective; Water Colour; Mathematics; Physics, Mechanics, Wave-Motion, Electricity; English Literature; European History.

* Those with an asterisk in the Syllabus.

Second Term: Design and Theory of Architecture; Architectural History; Freehand Drawing; Building Stones; History of Ornament; Water Colour; Mathematics; Physics, Electricity, Optics; English Literature.

THIRD YEAR.—*First Term:* Design; Architectural History; Freehand Drawing; Heating and Ventilation; Applied Mechanics; Political Economy; General Studies. *Second Term:* Structural Design; Architectural History; Special Lectures; Graphical Statics, Applied Mechanics; Theory of Structures; Materials; Business Law; General Studies.

FOURTH YEAR.—*First Term:* Structural Design; European Civilisation and Art; Pen and Pencil; Theory of Structures; Applied Mechanics; Laboratory Tests of Building Materials; Foundations. *Second Term:* Design, Thesis; European Civilisation and Art; Business Relations; Theory of Structures; Sanitary Science and Public Health.

With regard to the "Option" in Architectural Engineering offered to those students who intend to make a speciality of construction I cannot do better than quote some recent remarks made on the subject by Professor Wm. H. Lawrence, of the Massachusetts Institute of Technology, viz.:—

"It is an age of specialists in all professions, and to-day architecture naturally divides into two great branches, the first of which, for want of a better name, may be called the æsthetic branch, and the second the structural. These two are so intimately related, so closely interwoven, that one is a necessary complement of the other, and no man should be called an architect who is not master of at least the basic principles of both.

With this point of view in mind, the Course in Architecture at the Institute is divided into two options, one leading to specialisation along the æsthetic lines, the other along the structural. The structural work in the department is arranged to provide instruction suited to the needs of both options. In order that all students may have a knowledge of the fundamentals of the structural side of their profession, the preparatory study leading to the structural course is the same for both options during the first two and a half years. It includes mathematics, physics, and applied mechanics. At the middle of the third year the work of the two options diverges, becoming more and more practical in its application in each as it proceeds, but varying very much in the amount of time devoted to it in each option.

Thus, in what is termed the "æsthetic option," the time devoted by the student to constructional study diminishes relatively to that expended upon æsthetic subjects—the required structural work ending with a course in elementary constructive design, in the first term of the fourth year."

IDEALS OF THE PAST IN CIVIC DESIGN.

THE first of a course of three public lectures on Town Planning under the auspices of the Carpenters' Company, and in connexion with the University of London School of Architecture, was delivered at University College on Thursday, by Mr. H. V. Lanchester, F.R.I.B.A., the subject of the lecture being "Ideals of the Past." The chair was occupied by Mr. R. Cobay, Master of the Worshipful Company of Carpenters. The following is part of the lecture:—

We all recognise that the city throughout all times has accurately mirrored the aspirations and aims of the dominant section of the community; sometimes, but not necessarily, the spirit of the community as a whole, and always best and most vital when this is the case.

A study of the subject on comprehensive lines would of necessity start out from the dwelling as the basis of the city and consider the aims and objects of the primitive races in their aggregations of huts as the first step towards an organised communal life, but such a study, though of the highest interest, would alone occupy far more time than that at our disposal, and we must pass over these early stages of our subject in which the demands to be met were mainly of a material character, and take up the thread at a point where the practical requirements are no longer the only ones dominating the form of the city. Even to attempt this calls for more knowledge of the history and habits of the more ancient races than we at present possess; though the valuable researches now being carried on in Crete and in the Euphrates basin will probably (when we have had time to collate the results of these investigations) add greatly to our knowledge of the bases on which the successors of these races built up their ideals.

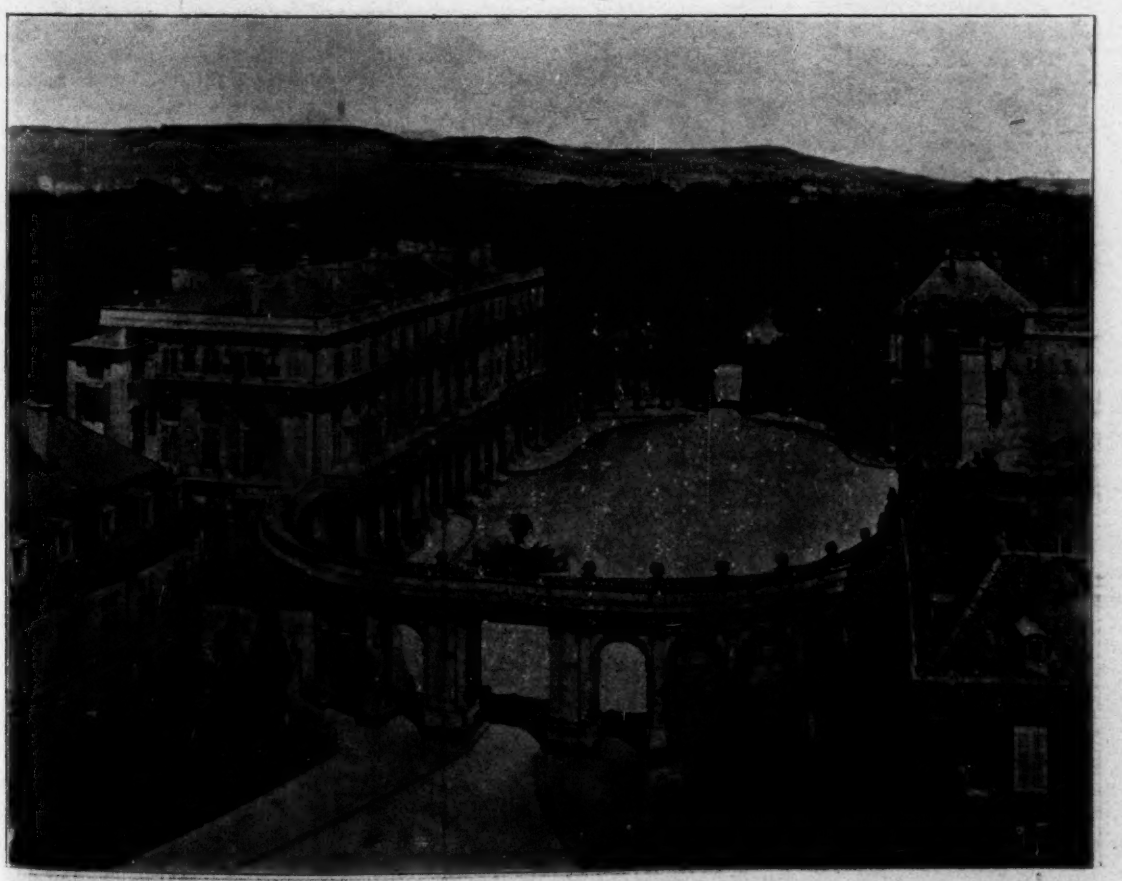
Much has been done in other fields by the study of primitive man and his varied standards of conduct and manners as exhibited in the more barbaric races still inhabiting various parts of the globe, but for our purpose these methods are almost useless, as we find in civic ideals an impossible gulf between the highest savage race and the point at which civic architecture stood when archæological research gives us its earliest message.

Possibly a link may be found in China, though the whole spirit of these Eastern races is so completely at variance with the course of the Aryan civilisations in the West, that it is extremely doubtful if it would be possible to connect the two to a further extent than has been done by Viollet le Duc and Choisy in the past.

Coming to Babylonia and Egypt, though we have important remains of palaces in the one case and temples in the other, our actual knowledge of the arrangement and distribution of the civic scheme is still but scanty, and does not include at present anything enabling us to form definite pictures of their more important efforts in this direction.

The Grecian cities are the earliest from which we can obtain a clear and comprehensive idea of a systematic civic life.

With the rise of the Greeks, who at their zenith were a democratic, not to say a socialistic, people, we find the development of a city on methods in which all had a share,



Hemicycle at Nancy.
(Completing a "place" by means of colonnades.)

including such embellishments as their artistic proclivities could suggest. We see that the various requirements of their municipal life were grouped and arranged with an eye to their combined effect and that the whole scheme was one evoking the interest of every class of the community. In such a scheme individual effort is not necessarily lacking, but it undoubtedly took a minor position to social and national works. This is obvious when we consider the arrangement of the Greek city such as Athens; the highest faculties were lavished on the buildings within the area devoted to the temples (the Acropolis), next in importance to this we find the Agora, their theatre, and other public meeting-places, while the houses of the citizens were built with little regard to their external architectural effect, and not until the later periods on a clearly defined scheme of streets. However the sense of order and design gradually extended to all parts of the city.

The Romans adopted the Greek traditions, but with a political constitution placing far greater material resources at their command they expanded the dispositions of the Greeks, by methods that enabled them to utilise labour relatively unskilled in the structural work, reserving the more skilled craftsmen for its embellishments, a system less calculated to produce a consistently beautiful form of architecture, but offering facilities in the way of producing grandiose effects with a small proportion of artistic skill.

As might be expected, there is a marked falling off in the arrangement of sculptural and other adjuncts to the general scheme. While the Greeks were careful that any piece of sculpture and work of special interest should be either reasonably isolated or else led up by appropriate surroundings, the Romans crowded monument on monument and aimed more at overwhelming the mind by a richness and multiplicity of impressions than by satisfying it with beauty of proportion and a noble simplicity of design.

Despite such faults, we must recognise that in many ways the Romans were the greatest masters we have ever had in comprehensive design; they carried the grouping of the buildings essential to a city further than the Greeks had found time to do in the briefer period of their sway, besides becoming absolute masters in the art of landscape gardening, which term, in default of a better, one may use to describe the adaptation of natural features to the exigencies of the artificial composition in which they are embodied, whether the materials of this composition are architecture, sculpture, or natural objects.

Unfortunately we can form only mental pictures of the extraordinary works of this age. Nevertheless, if but few of their works remain perfect, we have throughout the wide area of the Roman Empire remains sufficient to show us quite definitely what interest and dignity their cities must have possessed—the ordered plan, the liberality of space, the grateful shade of the long porticoes, with their ornaments and mouldings thrown into delicate relief by the light reflected from the sunlit streets, must have formed a magnificent setting for the groups of sculpture, the fountains and trophies that were erected at all the more important points.

The Arabs, who became the most skilful architects of their age, never arrived at a design of monumental character. Profoundly interested in detail, they often achieved picturesque effects, but all their ideals were too remote from those of the Latin races to render them acceptable to us, the natural inheritors of the latter. The same view applies very largely to the peoples of the East, whose more striking works were always self-contained and not designed as parts of a municipal scheme.

Coming to the Middle Ages we find the city constituted on an entirely different basis. It is evident that the mediæval town was never consciously laid out; it grouped itself bit by bit around areas and routes determined by the accidents of commercial traffic and defensibility in case of war.

Military science defined its boundaries, and commerce its centres and streets.

It might be imagined that with such parentage the offspring would be dull and uninspiring, whereas this is by no means the case. The charm and interest of the mediæval city is so universally recognised that an important school of town planners has arisen devoting itself almost entirely to a type of design based on the effect to be found in these old towns.

This I believe to be wrong, for the reason that the beauties they are trying to resuscitate depend to a very small degree on lay out, and to a very large one on architecture.

Notwithstanding, the ideals of the Middle Ages have their value in throwing light on some points of our subject. The work of Camille Sitte, which mainly consists in combating the unintelligent formalism too often seen in continental cities, is based on the most careful study of this period and his examples opens one's eyes to the judicious way in which details of municipal design were treated in the XIVth and succeeding centuries. His plea is largely for the preservation of effects of contrast, which are so often mutually advantageous in adjacent buildings, and for the careful study of each problem, on its artistic merits, *in situ*, as against paper schemes of geometrical regularity which may not necessarily secure the happy effect they appear to promise.

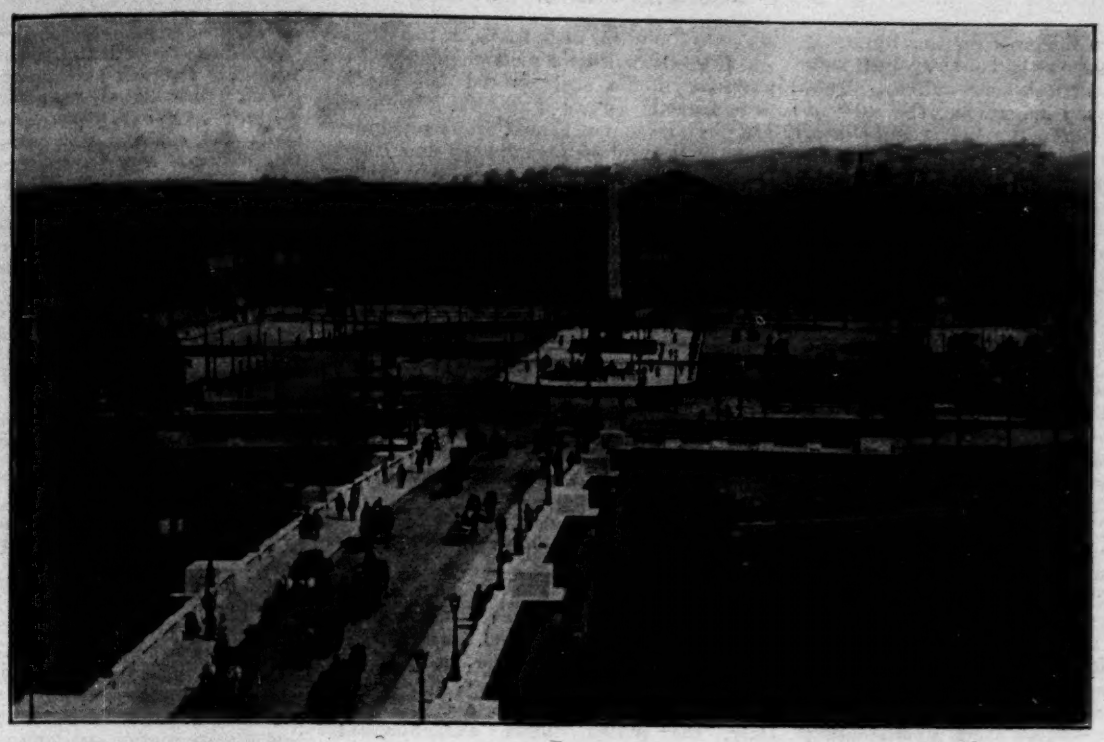
With the Renaissance men began to realise the scope of the classic period, and to emulate it by exercising their own skill on problems suggested by their researches.

The determined way in which they set themselves the task of comprehending the methods of the ancients, and carrying them on with only such modifications as the altered conditions demanded, has been most completely justified by the fact that, though they soon realised that they had far to go to rival their prototypes, it must be admitted that, except in material resources, they eventually succeeded in doing so, and that the chief masters of the time were equal in artistic skill to any Greece or Rome had produced.

These masters regained the knowledge that had died out ten centuries before, and only the diminished forces under their control prevented them from surpassing their examplers.

Plaza de Commercio, Lisbon.

(Linking up façades of a square by means of an arch.)



Place de la Concorde.
(Completed by closing the vista.)

In the blending of architecture with sculpture and both with the beauties of Nature their artistic skill has never been surpassed; the palaces and gardens of Rome, Florence, and Genoa, though primarily intended for the private and personal delectation of the owner, yet played so great a part in the national life and were so eminently suited for large gatherings of people as to become the fit precursors of all that has since done for the public in general.

The existence of the cities in their mediæval form (incidentally picturesque, but without a deliberately considered plan as a whole) limited in many ways similar effort devoted to public purposes. We have, however, the great piazza of St. Peter. The Piazza del Popolo, St. Trinita del Monte, the Fountain of Trevi, etc., in Rome and many well-designed piazzas, bridges, etc., in other cities. Turin, indeed, was entirely laid out during the later Renaissance, but its plan as a whole is somewhat monotonous, though possessing many interesting features.

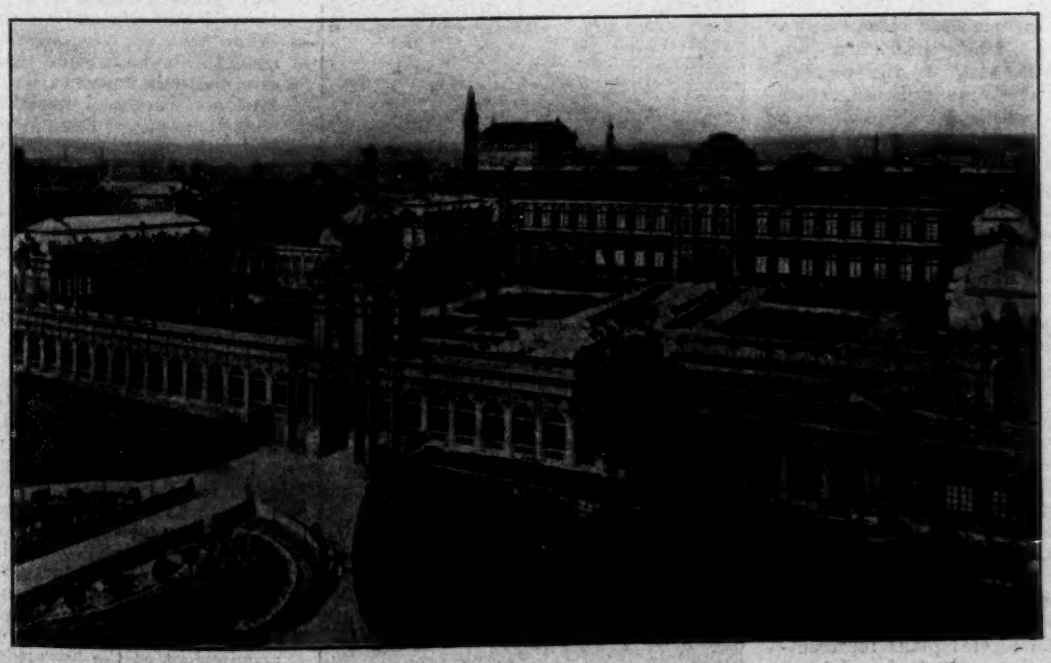
These traditions passed from Italy into France, and later on into the other European countries.

Towards the end of the XVIth century the French were gradually feeling their way towards a definitely national method, and early in the XVIIth century they reached a standard that, though it may not be considered equal to that of the Italian work of the previous century in matters of detail, is worthy of comparison with Rome in the disposition and massing of its buildings and their surroundings. The parks and gardens, even if they occasionally overwhelm one by an intentional display of apparently unlimited resources, do in their design mark such a just appreciation of the appropriate treatment that we must regard them as examples in this type of composition.

Lenotre and his contemporaries, at Versailles, St. Cloud, Meudon, and many other places, have left us a legacy of breadth and sublimity in garden design, that makes our lapse from their standard seem an almost inconceivable stupidity.

The same dignity of manner is also to be found in the building plans of the cities, in Paris, Nancy, Lyons, and other towns, the public buildings, squares, and streets of the XVIIth and XVIIIth centuries, show a mastery of the art of combining buildings to produce dignified effects.

In reviewing the work of this period one cannot refrain from taking note of the importance attached to good proportion and complete harmony in the squares and open spaces. We know that the mediæval close or market place, owing to the narrowness of the streets and their irregular lines, usually conveyed the impression of being entirely surrounded by the buildings, and in later times the same intention was expressed by linking up the frontages by means of colonnades and arches or by closing the vistas. Trees planted on formal lines were also recognised as valuable aids in linking up masses of buildings, and where the street opened without obstruction into the place the lines of the surrounding edifices were sufficiently firm and uniform to carry the eye across such openings. In later times a conflicting



The Zwinger, Dresden.
(A court entirely enclosed.)

ideal arose when the great hunting forests of the French Kings were laid out with their long alleys on geometrical lines radiating from centres of varying importance, the chief of these (where eight or twelve avenues met) inevitably took the form of a "Rond point," and some of the forests being in close proximity to Paris this form of plan was naturally transferred from the woodland to the city, as may be clearly seen in the designs of the XVIIIth century. A treatment so distinctively French we shall only find elsewhere where the influence of their artistic ideals has been clearly and markedly dominant, as in the case of Berlin under Frederick the Great or of the numerous other German cities built when Louis XIV. was paramount in Europe, or again in the later example of Washington, as laid out by the Frenchman L'Enfant. In countries remote from or hostile to France the system was only accepted to a very limited extent.

This substitution of the "Rond point" for the "Place" almost revolutionised the street planning of its time, the Place was complete in itself, it took nothing from and gave nothing to the surrounding streets; while the whole aim of the "Rond point" and the open squares based on similar lines was to glorify and enhance the avenues running into it, to give them a culminating point, the influence of which might be felt a mile away. Sitte and those who follow him in condemning the place with wide openings seem to have lost sight of the fact that in city planning on a monumental scale it is of far greater importance that the effect of the open space should permeate as large an area as possible than that the space should be a complete and perfect thing to a large extent shut off from its surroundings.

In the past the city has generally developed along lines according with the instincts and needs of its inhabitants; it is only in our day, with our eclectic tastes in civic design, that the attempt is made to foist the characteristics of a city of one type on that of another.

To return to our historical review, taking it up again at the point where we claimed the street system based on numerous radial lines meeting in important local centres as distinctively French, we may turn and see what the Renaissance meant to us in England during the XVIIth and XVIIIth centuries. Wren's plan for the rebuilding of London shows French influence to a marked degree, while Evelyn's study for the same purpose appears more influenced by Italy, but both are qualified, Wren's more particularly by the recognised unit of the oblong block composed of two parallel lines of houses and the necessary space for light between them. The English type of town plan has always had a basis of rectangles of longer proportion than in other countries owing to the popular preference for the single family house, rather than the block domicile accommodating a number of families. This makes our towns less impressive in their massing and general effect, but is so distinctively a national characteristic that any attempt to disguise it is to be deprecated.

It is a cheerless task to trace the later developments of civic life among the Anglo-Saxon peoples; while the Latin races still maintained the spirit of the Renaissance in the design of their cities, with us it gradually disappeared under the wave of utilitarianism that marks the middle of the XIXth century.

While we have so far been concerned with ideals that have met with general acceptance, and have consequently taken material shape, we must not at the same time entirely omit to notice these that have emanated from the individual, not necessarily in the form of a practicable design, but possibly as a contribution to the study of the requirements of the city. Apart from written descriptions of the ideal city, there appeared in the course of the Renaissance several plans representing the city of the author's imaginings; they are not of especial value to us, a few rough sketches in Leonardo da Vinci's notebooks being more interesting. Leonardo suggested a town with traffic on two levels which would indicate a remarkable degree of prevision if the sketches did not enable us to trace the genesis of the idea. Leonardo jots down a scrap of Venice, draws a diagram showing a town with waterways under and roadways over, then another little sketch with roadways both under and over.

Though actually carried out, I feel impelled to class the plan on which a small portion of Detroit was rebuilt in 1806 among the ideal plans, as it is a brilliant geometrical study, aiming at securing the advantages of a plan on a triangular basis, while still retaining the advantages of rectangular plotting; of course, such a plan is only suited to a flat site such as that on which Detroit stands, and it is rare that an opportunity of this kind presents itself. This plan is, as far as I know, unique in the manner in which the problem was approached.

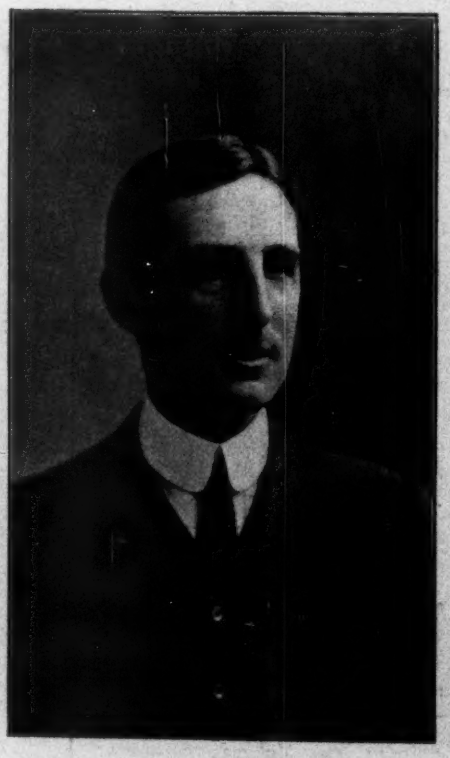
I quite realise that your anticipations may have pictured that our retrospective studies could well have been put in a more romantic form, that an attempt might have been made to realise the hanging gardens of Babylon, the glint of white marble and the sparkle of colour and metal which shone out from the Acropolis and many another temple group across the plains of Greece and Southern Italy, the golden domes and terraced hillsides of Rome, the contrast between the dark spire of the cypress and long stretches of pearl white wall—or again pool, waterfall and fountain, so essential to the pleasures of the garden in warm climates. The course I have adopted is in no way due to lack of sympathy with the higher flights possible when the technique of civic design is mastered, but to a sense of what is most needed as an introduction to the kind of work before us at the present moment.

[The second lecture, on "City Developments at the Present Time," will be delivered on the 13th inst. at 6 p.m.]

ARCHITECTURAL SOCIETIES.

Liverpool Architectural Society: Presidential Address.

The opening meeting for session 1910-1911 of the Liverpool Architectural Society (Incorporated) was held on Monday, when Mr. Arnold Thornely, F.R.I.B.A., delivered his Presidential address, in the course of which he said:—



Mr. Arnold Thornely, F.R.I.B.A., President of the Liverpool Architectural Society.

"Brother Architects and Gentlemen,—It is with a sense of heavy responsibility that I take this chair on the occasion of the first ordinary meeting of our sixty-third session. When I look back upon the names of the many distinguished men who have occupied this position—men who have done so much to promote the welfare, advance the interest, and increase the influence of this Society—it makes me realise how much may be expected of me and how little I am able to fulfil those expectations. Let me assure you, however, that, whether I succeed or fail, my endeavour will be to uphold the dignity of the office to which you have elected me and to promote the best interests not only of the Society, but the profession to which we are so rightly proud to belong.

Since the close of the last session the nation has sustained an overwhelming loss in the death of King Edward VII. A monarch beloved by all, his memory will ever be revered by artists as well as architects from the fact that he did more to promote the cause of peace than any other Sovereign of past or present times.

Membership, etc.

The thought has often passed through my mind, after listening to a paper by one of the many distinguished architects who have been good enough to honour us with their presence, that the knowledge and research contained in it is worthy of a larger audience than the members of this Society can supply. Many of these papers, which are not necessarily technical, would be listened to by laymen with an interest equal to that shown by architects, and I should therefore like to see our doors thrown open and the public invited to attend on occasions such as I have mentioned. When one considers these lectures and the interest and knowledge to be obtained by attending them it is difficult to understand why this Society (apart from the many other advantages it offers) does not embrace a very much larger membership. As most of you are aware, it was founded in the year 1848 under the name of the Liverpool Architectural and Archæological Society, the name in the year 1876 being altered to that of the Liverpool Architectural Society, when its association with archæology was wisely terminated. In the year 1849 the number of practising architects in Liverpool whose names appeared in Gore's Directory amounted only to seventy-one. To-day the names so appearing number about 210, practically three times the number. The membership of this Society in 1849 totalled 129, as against a total at the present time (apart from students and honorary members) of 131, an increase of two only, and a state of things which can hardly be deemed satisfactory. Apart from the practising architects, there must be at the present time a still greater increase in the number of architectural students and assistants in this city. When making comparisons in this way it should be borne in mind that the Society now does not only represent the architectural profession of Liverpool, but of many other towns and districts of Lancashire, Cheshire, and North Wales through its alliance with the Royal Institute of British Architects. Now that the Institute has obtained its charter and there is a reasonable prospect of the doors of the profession being closed in the near future against unqualified men the time has arrived when this Society should endeavour to include in its membership every qualified architect residing or practising within its province.

Of the large number of architects who have hitherto remained outside the Institute, and are now joining as Licentiate members, many are from this neighbourhood, and why should they not be induced to join us?

I feel very strongly that by increasing our membership we should be in a stronger position to promote the well-being of the profession and the art of architecture. It must be our aim to fulfil in the highest degree the objects for which this Society was founded—namely, "to undertake and encourage the general advancement of civil architecture and to promote and facilitate the acquirement of the knowledge of the various arts and sciences connected therewith and to promote professional integrity and honourable practice and generally to promote honourable relations in the professions."

The question then arises, What is the best way of carrying out these objects? It is not sufficient to increase our membership; that is only a preliminary measure. Mere numbers are of little value unless each unit is filled with a desire to do something.

Education.

I take it that all of us, or nearly all, are enthusiasts in the art we pursue, for without this quality we cannot expect to get very far. We are, moreover, all anxious to encourage the advancement of civil architecture and to promote and facilitate the acquirement of the knowledge of the various arts and sciences connected therewith.

In order to do so we should at least endeavour to educate ourselves to the fullest extent of our powers, for the knowledge architects of the present day are supposed to possess covers an immense amount of ground. An architect has never finished learning; each day brings forth some new problem to be solved, a new material to be used, or novel mode of construction to be mastered. If every young man before entering the profession were fully informed of the various subjects he would be expected to master I am sure that many who enter (only because they have a taste for drawing) would beat a hasty retreat.

Qualifications for the Architect.

Let me mention a few of the qualifications which it is desirable for an architect of the present day to possess. He should have a good general education, and possess a knowledge of mathematics, science, and physics and an acquaintance with French and German. He should be in entire sympathy with the allied arts of sculpture and painting and the various crafts connected with building. Original power of design is given to few, and the man who possesses it may deem himself fortunate. A general knowledge of all styles and an intimate knowledge of one style (preferably Classic) is indispensable. He should be a sound constructor and understand the properties and qualities of the various materials with which he builds, and possess a knowledge of business methods to organise and carry through the contracts under his control to a successful issue. He should have energy, patience, and tact, and, above all things, he must be strictly honourable and just in all his dealings.

Public Appreciation.

It is a very good thing to keep constantly before us what may be expected of us as architects individually and as a society, but I think you will agree with me when I say there is another side to the question. It is of little use for us to aspire to these high ideals unless our efforts when they are successful meet with some measure of approval and appreciation on the part of the public. For what is more stimulating to any architect than the feeling that he has achieved something which meets with the approval of the public as well as that of his brother architects? But the public, or a very large proportion of it, is supremely ignorant of the most elementary principles of architecture, and, what is worse, I might add, largely indifferent. That such should be the case is a misfortune, to say the least—a misfortune both to the public and to the architectural profession. First let us look at the matter from the man in the street's point of view. Unless he is able to recognise good work, to understand and to enjoy it, how can he expect to get it? I have a strong conviction that where there is a demand a supply will surely follow, and this is equally applicable to good architecture as to almost anything else.

It appears to me to be somewhat curious that the art of painting apparently appeals to the average man and woman so much more than that of architecture, an art which is universally admitted to be second to none.

We all know how the public will go in large numbers to galleries of modern paintings, spending many hours on end in examining with interest the good, bad, and indifferent works hung upon the walls. How seldom will they cross the street to make even a cursory examination of a good modern building? They will undoubtedly take some trouble to visit an ancient edifice, and deceive themselves with the idea that they will derive some pleasure from a study of its architecture. But how seldom is this the case? A guide-book tells them what to admire, but they do not see and understand; they have no eye for its repose, beauty of form, fine proportion, or skilful construction, its refinement of detail and mouldings, even if it possess these qualities in a marked degree. These to them are a closed book, for having eyes they see not, and their real enjoyment is in the crumbling walls clad with foliage of varying hues and softened in course of years by wind and weather.

Old Work.

But are we not responsible to a certain extent for this state of things? It has been our custom to bestow endless praise upon all old work, to instil into our students the necessity to measure, sketch, and photograph it, until the public is almost forced into the belief that nothing else is worthy of their consideration. I have no wish to decry in the least degree the beauty to be found in such relics of the past, but there is a false tendency to see beauty in them because they happen to be old. Much of this work is spoken of with bated breath—and disparagement becomes almost a case of *de mortuis nil nisi bonum*. It has its faults, like most things, and if we look for them they are probably to be found in a greater degree than in much of our best modern work, and which, moreover, is not assisted by the tempering hand of Time.

Education of the Public in Architecture.

We have heard a great deal in recent times about the education of the architect, and not without good reason. It is only within the last ten to fifteen years that the matter has been taken in hand in a systematic manner. Schools of architecture and other teaching centres have sprung up in many towns since Liverpool took the lead in this direction. Previously the architectural student, and particularly the provincial one, had been left to look after himself, to pick up such crumbs of knowledge as were to be obtained where he served his apprenticeship.

It is not, however, my intention to enter upon this subject to-night—almost every presidential address of recent years has dealt with it in some form or other; but there is another form of education upon which I should like, with your permission, to say a few words—viz., the education of the public in architecture. There is no gainsaying the fact that the public has and always will have enormous influence and control over the art of building in this country. This being so, how great is the necessity for it to use this power in a manner likely to elevate the art rather than to degrade it.

The education of a gentleman in the XVIIIth century was not considered to be complete until he had acquired some knowledge of architecture. How far that knowledge went I cannot tell you, but if it caused him to demand a higher standard of excellence from the architect he employed, if it helped him to study, it was manifestly for his own good and that of the community. It has often been stated that a little knowledge is a dangerous thing. Undoubtedly this may be the case if it be applied in wrong directions and the person possessing that little set it up against the greater knowledge of those to whom he should look for guidance. I think, however, we all should be willing to run this occasional risk in return for the benefits which would generally accrue.

The question naturally arises, How is the public to be educated in architecture? I think the answer is mainly in the hands of the architects. If we could without doubt prove to the public that by demanding and obtaining good architecture it was making a lucrative investment the problem would solve itself in a very short time. Everyone would at once make it his business (apart from the pleasures to be derived) to learn something about the art which would increase the value of his property. Unfortunately, there is an erroneous idea prevalent among many that architecture is necessarily an expensive luxury as compared with what may be termed ill-considered building. That such is not the case has been clearly demonstrated of late years at the various garden city exhibitions. Here you may see how much architects can achieve in the humblest class of house and cottage building by skilful design and the right use of material. If this be the case with buildings of such modest pretensions, how much more so is it with larger works offering greater opportunities.

That these exhibitions have been a source of great interest to the public there is little doubt, and I believe they will prove to be of great educational value in causing people to recognise the difference between good work and bad, and so demand a higher standard of domestic architecture.

Domestic and Municipal Architecture.

Although this method of teaching is practicable in the case of small houses, it is quite impossible of application to buildings of a monumental character. It is universally admitted that our domestic architecture has at various periods reached a very high standard, and that at the present time the standard is being well maintained; but we cannot make such a statement with regard to the design of our public buildings. Somehow or other, the reason for which has never been quite adequately explained, when the opportunity does occur to rear a monumental work of the first importance it seldom happens that the result is altogether satisfactory. How far this is attributable to the public and how far to the architect it is difficult to say. I am inclined to think each party is about equally responsible.

At the outset how often it occurs that the Government, municipal authority, committee, or other body which is responsible for the selection of the site chooses one upon which it is impossible to give a suitable setting to the building. In many cases it cannot help itself; the town has been allowed to spread haphazard in all directions, resulting in narrow, crooked streets which have taken the line of least resistance. No consideration has been given to open spaces, central grouping, and other factors which are necessary adjuncts to monumental works. Town planning as a science and an art has been unthought of.

I admit that the question often presents difficulties, but these might in many instances be overcome if the financial aspect of the case were not allowed to assume undue proportions.

Competitions.

Following the selection of a site, architects are invited to submit competitive designs. Whether this method of selecting an architect goes to procure the best result architecturally is very open to question. Many architects of eminence defend it, while others of equally high standing condemn it. If mere convenience of plan combined with a moderate standard of architectural design be the main object to be attained, I believe the competitive method is justified. They are certainly the qualities which as a rule have most weight with the assessor and the committee he serves, and, that being so, architects cannot very well be blamed for making them their first thought.

Monumental Buildings.

There may be some excuse for this manner of selection in works of minor importance, but I do not think it holds good for a building of monumental character. In this case mere convenience of plan and the successful arrangement of minor details may very well take a lower place and give way to the scheme which embodies the finest conception as a whole, even though it be defective in providing the maximum of convenience. The particular requirements of each generation are subject to constant change in matters of detail, but a building which is once a masterpiece of architecture remains a masterpiece (provided it is not tampered with) and a lasting joy throughout all generations. I think this is frequently overlooked both by architects and public, whose vision requires extending so that they may see these things from a larger standpoint. One of the many advantages that will accrue from the interest which architects and public alike are now taking in town planning is that it will have the effect of broadening their outlook. It should teach them that it is not sufficient to deal with each separate problem as it arises as though it were a thing detached and independent of everything around it.

Illustration, etc., of Designs.

That the merit or otherwise of the designs of an architect cannot be truly judged until they are translated into actual building is a fact of which we are fully aware. He

cannot, however, ignore the importance which attaches to the means by which he attains his results—namely, the illustration of his designs by drawings and models prior to their being put into execution. I am afraid that hitherto this particular branch has met with comparatively little notice by the public at large. They seem to look upon the subject as altogether too technical, and therefore not worth troubling about. This want of interest is not very surprising when we consider how architectural drawings are usually brought to the public notice. It more often happens than not that they form an insignificant corner in a larger exhibition of paintings in oil and water-colour. The space usually allotted to them is so cramped and unsuitable that architects cannot submit drawings of any size and importance; a representative exhibition is therefore impossible.

So far as I can see, there is no reason whatever why the exhibition of architectural work in England should not receive the same attention as it does in France. I think, however, it is a mistake to let it form part of a picture exhibition; the drawings are in no sense pictures, and do not pretend to be, but the public is apt to look upon them as such, and consequently they suffer by comparison.

Architects and their Art.

I have endeavoured to enumerate a few of the many ways in which the public may be led into more intimate touch with architecture, their interest stimulated, and their knowledge increased; but let me express a hope that we on our part may prove ourselves worthy exponents of the art for which we stand, and trust (to quote the words of a well-known writer on the subject now passed away) "that our glorious art may in the future have still greater triumphs than it has had in the past; for, looking at our wider knowledge, our wonderful appliances, our new materials, our acquaintance with the powers of Nature, the greatness of our Empire and its position in the world, it may well be expected, if we and our successors retain our self-denying and single-eyed devotion to our art. I hope that in the future the nation will take a deeper interest in architecture, feel prouder of its triumphs, and understand what it does for the country; that the architects, casting aside archæology except for study, may evolve a phase of art which fulfils the tastes and aspirations of the nation as completely as the Greek temples or the cathedrals of the Middle Ages once did. And surely this is taking a very modest view, for may not we who 'rift the hills and roll the waters, flash the lightnings, and weigh the sun' hope to erect monuments that will cast into shade the Greek temples by their exquisiteness and sublimity and the glories of the Gothic cathedrals by their size, daring, and solemnity?"

The vote of thanks was proposed by Mr. Willink and seconded by Professor Reilly.

In connexion with the recently-proposed King Edward memorial in front of the Pediment of St. George's Hall, two resolutions were passed by the Society; the first approving the action of the Finance committee in refusing to grant the site for the memorial; the second strongly recommending that any further scheme should be fully discussed in public, and, if possible, the advice of the Society sought in a matter which so nearly concerned the art of Architecture.

Royal Institute of the Architects of Ireland.

An ordinary meeting of the Council of this body was held on Monday last at 31, South Frederick-street. The President, Mr. F. Batchelor, F.R.I.B.A., occupied the chair, and there were also present:—Messrs. L. O'Callaghan, H. Allberry, Frederick Hayes, J. H. Webb, F. G. Hicks, A. E. Murray, A. G. C. Millar, G. P. Sheridan, G. F. Beckett, and C. A. Owen, Hon. Secretary.—The minutes of the previous ordinary and two special meetings having been signed, a letter from the Cork Industrial Association was read, calling attention to the All-Ireland Conference in that city. It was decided to ask Mr. Arthur Hill, F.R.I.B.A., of Cork, to represent the Institute as delegate at the Conference.—A report from the Professional Practice Committee in connexion with the Licentiate Class of the R.I.B.A. was read and adopted. Further consideration was given to the scheme of examination, a notice of motion in connexion with the provision of the necessary machinery and syllabus being handed in for discussion at the next meeting.—Some financial business was transacted and the meeting terminated.

UNIVERSITY EXTENSION LECTURES ON ARCHITECTURE:

MEDIÆVAL ARCHITECTURE.

MR. BANISTER FLETCHER, F.R.I.B.A., gave on Monday last the first of a course of twenty-four University Extension Lectures on "Mediæval Architecture" at the Victoria and Albert Museum, South Kensington, S.W.

He dealt firstly with the nature of the lectures to be given under the auspices of the University of London during the coming session, and explained that he would deal with the study of architectural history on broad lines from a popular point of view, and trace its evolution in the different countries of Europe. He referred to architecture as a visible exponent of civilisation uniting and embracing the other arts, and pointed out that all modern design was founded upon old art, although altered in order to conform to existing conditions. Architecture being the basis of all design, a knowledge of it was necessary to designers and art students, and was also of use to a much larger class which practically included the whole community. The author and novelist required a knowledge of the subject for the setting up of a historical novel, because a mere story about people without reference to the buildings they inhabited was uninteresting and insipid. The journalist and the photographer also could not take an intelligent interest in their work without a knowledge of it. The connoisseur should also be interested, for the fascination of collecting was much increased by a knowledge of the dates and character of successive periods of architecture. The teaching profession now realise that to make history interesting the student should be taught not only what men did, but what they made; not only that they fought battles, but what sort of buildings they lived in and the churches they erected for the worship of God. The lecturer also dealt with the general student, pointing out the necessity of a knowledge of architectural history in order to appreciate travelling, which had been rendered so easy in these days, for to travel without a knowledge of architecture is like having a book in front of one without the ability to read it. An improvement in English architecture would undoubtedly be brought about by the study of the most beautiful examples of past styles. Mediæval architecture was a continuous evolution from the early round-arched or Romanesque period to the pointed arch or Gothic period, and was not the result of efforts reflecting the tastes and ideas of individual architects, but the result of forces and tendencies underlying the whole life of mediæval times.

Mr. Fletcher referred to the prominence of the clergy, the monastic communities, the secular canons and friars, and military orders, and the extraordinary power and influence of the papacy, the crusades and the influence of dogma on church planning, the condition of the people, the wild state of the country, with few roads and the necessity of pack-horses for carrying building materials; the feudal system, the growth of the towns, and the trade guilds of London. Views were then shown connecting mediæval architecture with the styles of the past, also of the various types of buildings erected in the mediæval period in Europe.

The lantern slides, of which some 1,200 will be shown, are a special feature of the lectures, rendering the acquisition of a knowledge of architectural history comparatively easy, while the visiting class after each lecture enables students systematically to study the objects in the museum.

In conclusion the lecturer said that he would endeavour to introduce the atmosphere of the mediæval period into the lectures, so as to form a background of association between history and architecture, and hoped that henceforth they would appreciate old buildings and be able to study their life history and understand how they had been erected.

The lectures are given on Monday evenings at 5 p.m. in the lecture theatre of the Victoria and Albert Museum.

ANCIENT ARCHITECTURE.

MR. BANISTER FLETCHER, F.R.I.B.A., gave the first of a course of twenty-four University Extension Lectures on "Ancient Architecture" at the British Museum on Tuesday afternoon.

He first dealt with the nature of the lectures to be given under the auspices of the University of London during the coming winter, saying that he would trace the evolution of ancient architecture in Egypt, Assyria, Greece, Rome, and Byzantium on broad lines from a popular point of view. Architecture, the lecturer explained, was the visible exponent of civilisation embracing other arts, and all present-day buildings were founded upon old art suited to modern needs. The study of architecture was thus necessary to architects, craftsmen, and art students, and further it would be difficult to find anyone to whom a knowledge of the subject would not be beneficial. The author, journalist, photographer, and antiquary all required a knowledge of the evolution of the successive periods of architecture in order to help them in their work. The teaching profession now also endeavours to make history interesting by referring to the dwellings and temples constructed by the different peoples to suit their social and political requirements.

A knowledge of architectural history also added much to the enjoyment and benefit of travel, which is so popular in these days of quick and easy transit, for it would enable travellers to take an intelligent interest in the buildings and monuments they saw, from which the history of the past could be gleaned. By a study of the most beautiful buildings which had been erected in past ages, an improvement in the architecture of our own country would assuredly result.

The lectures are to be illustrated by some twelve hundred views, the object being to transport students as it were to the actual sites, and so familiarise them with the principal buildings, so that during the twenty-four hours thus spent they would be enabled to study what would require in actual travel at least as many months.

Mr. Fletcher next gave a short illustrated review of ancient architecture in order to show the different types of buildings, and referred to the various influences—geographical, geological, climatic, religious, social, and political, and historical—which aided in their evolution. He mentioned the world-famous Sphinx—a sentinel of the past—and the massive temples and tombs of the Egyptians, the palaces of the Assyrians, the temples of the Greeks, *e.g.*, the Parthenon and the Erectheion, and their open-air theatres, the great buildings of the Romans, including the Baths of Caracalla and stupendous Colosseum at Rome, the Arches of Triumph and the dwellings at Pompeii, the Congregational Churches of the Early Christians, and the peculiar types of buildings erected under the influence of Byzantium, the lecturer pointing out the peculiarity of structure and design in each case. These buildings were shown by means of slides.

The lectures are delivered on Tuesday afternoons at 4.30 p.m. in the Assyrian Saloon. Particulars can be obtained from Miss Gaudet, Hon. Secretary of the Course, 120, Cheyne-walk, Chelsea, S.W.

CORRESPONDENCE.

St. Paul's Bridge.

SIR,—I was pleased to see Mr. Pepler's letter in your issue of the 1st inst., because, in view not only of its magnitude, but of the far-reaching influences it may exercise upon the future aspect of the metropolis, the proposal of the Corporation should be carefully considered and discussed from all standpoints before it is submitted to Parliament.

As any great civic improvement of the nature proposed must necessarily react either for good or evil upon the æsthetic aspect of London, your readers would do well to make a special study of the subject, and send you any proposals or suggestions relative to the scheme which may occur to them.

For instance, it seems to me that although the City Corporation's plan may meet with the approval of those persons whose interest in the question of the new bridge and its approaches begins and ends with the desire to see a new traffic route formed, yet, inasmuch as the æsthetic side of the proposal

appears to have been altogether neglected, much still remains to be said on this aspect of the question.

Attention was briefly called to the salient points of the Corporation's scheme in your article of July 2 last, and these may be thus summarised :—

The approach of the proposed new bridge commences on the south side of the river at the junction of Southwark-street and Southwark Bridge-road, and ascends, in a north-westerly direction, to the bridge itself, which is to consist of three spans. On the north side of the river the approach passes by viaduct over Upper Thames-street and Queen Victoria-street, terminating by a junction with Cannon-street at St. Paul's-churchyard.

And in order to complete the proposal and to make the new bridge part of a great scheme for an entirely new communication from north to south it is proposed to widen the eastern side of St. Paul's-churchyard.

Such, in brief, are the Corporation's proposals, in which, as you have already said or implied, the artistic possibilities connected with the construction of the proposed new thoroughfare have received scant consideration.

On these grounds the suggestion you have made for rendering the scheme architecturally attractive by opening up the south side of St. Paul's seems a valuable one.

But with regard to your other proposals, which are in the main of a more practical nature, I have not yet had an opportunity of fully considering them in detail or of comparing them with the Corporation's plan.

And I am certainly heartily in accord with your view that no scheme can be regarded as thoroughly satisfactory which does not afford an uninterrupted view, from some portion of the route, of the dome of St. Paul's as seen from the south.

With regard to Professor Pite's plan of the bridge and its northern approach, although *primâ facie* it appears to provide all that is required, it is certainly open to the three very practical objections raised by Mr. Pepler.

In conclusion, may I venture to suggest that many of your readers would be interested to see a sketch plan of the Corporation's proposal in the pages of the *Builder*?

ALFRED W. S. CROSS.

Town Planning Conference.

SIR,—The Town Planning Conference, which will open in London on the 10th inst., has been convened by the Royal Institute of British Architects to consider the questions involved in the improvement and extension of our cities, with special reference to the artistic and constructional problems involved. Membership is open to all (including ladies).

Not the least interested in this important subject are the many who prefer freedom and private enterprise to the drastic methods of State interference, and it is therefore to be hoped that individualists will make themselves heard on the occasion.

London affords an admirable example of a city which owes much to private enterprise, for we are indebted to the generous planning of individual owners for the great squares which are so distinguishing a feature of the metropolis. So much is this the case that I venture to assert that not one of these garden spaces can be pointed to as the outcome of planning on the part of a public authority. The facts with regard to the London squares should be carefully considered at a time when so many seem to believe that the only road to improvement is by way of State interference.

MARK H. JUDGE, A.R.I.B.A.

A Plea for Open-Air Museums.

SIR,—I have to thank you for your reference a few weeks ago to my plea for open-air museums for this country on the lines of the open-air museums at Lyngby, near Copenhagen; Skanven, near Stockholm; and Bygdö, in Norway.

May I note how powerfully my plea is supported by the case of the Old Golden Lion, in Deritend, Birmingham, of which you print such an interesting illustration?

"It seems to be regarded as impossible," you say, that it "should remain in its present position," and you very wisely suggest removal. The idea of preserving the façade only you properly discountenance. I hope the public spirit of Birmingham may be equal to using the Old Golden Lion as the nucleus of an open-air museum for that great city and its environs. As you say, three notable specimens of the splendid old half-timbered houses, formerly abounding in Birmingham, have been removed within the past sixty years.

It is very true that to remove old houses and to re-erect them elsewhere is to sacrifice in the process a great deal. The question is, however, whether we shall by a too pedantic adherence to an excellent principle lose so many of these old buildings altogether. Cases must occur in which it becomes a distressing necessity, if modern requirements of light, air, and locomotion are to be regarded, to pull down old buildings. The open-air museum—only to be resorted to in cases of real need, of course—would be able to save many of these for posterity. The fear of such a museum being an invitation to pull down what might be reasonably saved is, I think, exaggerated. The case for leaving things as they are is usually too strong for unnecessary removals to be brought about.

If we had open-air museums up and down the country there would be an alternative to destruction, which does not now exist. At present the owner or the improving authority answers the plea of the antiquarian and the architect with a *non possumus*, "It is a sad necessity to pull down the building, but it simply cannot remain where it is." Let us offer, then, to take it elsewhere.

That the elsewhere should be a local open-air museum rather than a national one, in which the building would be out of its natural area, goes without saying. I hope your powerful pen may be counted upon to urge the Birmingham people to see if they cannot make the Old Golden Lion the nucleus of the first open-air museum in this country. It may be of interest to your readers to know that the idea of an open-air museum or museums has already been supported by, among others, Sir Edward Brabrook (President of the Society of Antiquaries), Mr. William de Morgan, Mr. Richardson Evans (Hon. Secretary of the Society for Checking the Abuses of Advertising), Principal Geddes, Mr. George Hubbard, F.S.A., F.R.I.B.A., Dr. F. G. Kenyon (Principal Librarian at the British Museum), Mr. E. V. Lucas, Mr. W. T. Oldreive (Principal Architect for Scotland for H.M. Office of Works), Mr. Louis Parker (of the pageants), Mr. William Poel (of the Elizabethan stage), Mr. A. F. Pollard (Professor of English History, University College, London), Mr. Walter Raymond, Mr. Halsey Ricardo, F.R.I.B.A., Mr. G. Bernard Shaw, Mr. F. W. Troup, F.R.I.B.A., Mr. Thackeray Turner (Hon. Secretary of the Society for the Protection of Ancient Buildings), and Mr. Emery Walker, F.S.A.

On the question of the difficulties of removing old buildings which were found to be worthy of a place in an open-air museum, Mr. W. H. Godfrey—who has had quite exceptional experience in the case of a building of remarkable size and importance, Crosby Hall—will perhaps allow me to make the following quotation from an interesting letter with which he has kindly favoured me :—"Of course, it is not every building that will stand removal, but stone and timber structures present very little difficulty, and, from a constructional point of view, they can be made safer and more sanitary by removal than by repair *in situ*." HOME COUNTIES.

INTERCOMMUNICATION COLUMN.

Spiral Pillars.

SIR,—Mr. Houghton Spencer may be interested to know that there are two pillars with spiral lines in the north nave arcade of St. Lawrence's Church, Pittington, Hallgarth (about 4 miles east of Durham). They are distinguished from most of those he mentions in that the spiral is a projection, not a groove. The arcade is of Norman date, and the pillars alternate with rather elaborately-adorned octagonal piers. HENRY CAYLEY.

Steam *v.* Gas for Power.

SIR,—In reference to a recent inquiry as to the relative cost of running steam *versus* gas power in a works the following information will be of use :—

The factory in question is a hosiery factory in Leicester, and in the year 1909 75 per cent. of the power was supplied by gas-engines, and the factory was lighted by gas. The remaining 25 per cent. of power was supplied by a steam-engine, the exhaust of which was used as far as possible for heating, the remainder being made up with live steam. In the year 1910 the whole of the gas power was removed and replaced by steam power, and the steam-engine was also used to drive a dynamo for lighting purposes, leaving only a small portion of the works, say about 10 per cent., on gas lighting.

The total cost of gas power, gas light, coal for power and heating, and water for gas and steam engines for 1910 was approximately 570*l*. The total cost of gas light, coal for power, and water for steam-engines in 1909 was 700*l*.

It will thus be seen that the saving effected by replacing the gas plant with a complete steam plant was 130*l*., which is rather more than 18 per cent. No additional labour has been employed to look after the steam plant, as there has always been an engineer on the premises to keep the machinery, shafting, etc., in repair. The saving, of course, is not quite so great as it would have been if the whole of the power had been gas to start with, instead of part steam and part gas, but the saving made is considered to have perfectly justified the change.

I might also say that the class of steam-engine fixed in this case is rather an extravagant second-hand one, and in a larger plant with a thoroughly up-to-date engine there should be no difficulty whatever in making a saving of 25 per cent. J. W. J.

FIFTY YEARS AGO.

From the *Builder* of October 6, 1860.

The Great Bells at Westminster.

UPWARDS of four years have passed away since the first great bell, called "Big Ben," for the clock at Westminster Palace, was cast; and many readers will remember that, while he was temporarily suspended from a beam at the foot of the tower, in October, 1857, he received a death blow. During the month of May, 1858, his successor, Big Ben the Second, was produced; and, having been raised to his chamber in the clock-tower in October, and subsequently fixed to the large iron beam, he proclaimed the hour at the bidding of the clock on or about the 12th of July, 1859. But on a certain day in the month of September, in the same year, he was silenced also. So much for the performances of the two Big Bens.

With respect to the condition of the great bell, the "Reports" by Dr. Tyndall, Dr. Percy, and the Astronomer Royal, may be interesting so far as they relate to the cavities, cracks, and composition of the bell. But, whatever may be the opinion of these eminent professors as to whether it may again be made use of without any risk of breaking, the all-important question is;—"What is the condition of the bell in a *musical* point of view?" I must say, then, that it is by no means satisfactory; for, though we may perceive no jarring, nor grating of surfaces of the cracks; and though the note of the bell may have been called pure, it is defective, very doleful, and, in my opinion, incurable. The truth is, that, since this Big Ben the Second was fixed in the clock-tower, he has never given out his "*fundamental note*" with its proper complement of "*harmonics*;" and this is the reason why the sound emitted does not "ring" like that of a perfect bell. In other words, this suggests the reason why the sound which strikes the ear is destitute of grandeur and richness of tone.

THEATRE, NOTTINGHAM.—On the site of the old Caskgate-street Congregational Chapel at Gainsborough, Mr. John R. Fox has erected a theatre, which is to be known as the Grand Theatre and Varieties. Mr. W. Eyre is the architect.

THE

BUILDER.

OCTOBER 8, 1910.

TO CORRESPONDENTS.

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MEETINGS.

FRIDAY, OCTOBER 7.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Dr. C. Porter, B.Sc., on "Sanitary Law"—III. 7 p.m.

FRIDAY AND SATURDAY, OCTOBER 7 AND 8.

The Institution of Municipal Engineers.—Second Annual General Meeting, to be held at Eastbourne.

SATURDAY, OCTOBER 8.

Institute of Sanitary Engineers.—Visit to Houses of Parliament, by permission of the First Commissioner of H.M. Office of Works, for the purpose of inspecting the heating and ventilating arrangements, 2.30 p.m.

MONDAY, OCTOBER 10—SATURDAY, OCTOBER 15.

Royal Institute of British Architects' Town Planning Conference.—See our last issue for programme.

MONDAY, OCTOBER 10.

The Architectural Association.—Annual General Meeting. Address by President (Mr. Arthur Keen) and distribution of prizes. 7.30 p.m.

University of London (Victoria and Albert Museum).—Mr. Banister Fletcher on "A Typical Mediæval Cathedral" 5 p.m.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Dr. A. Wellesley Harris on "Duties of a Sanitary Inspector: General, Outdoor." 7 p.m.

The Incorporated Clerks of Works Association (Carpenters' Hall, London-wall).—Paper by Mr. G. S. Willis on "Amiens Cathedral." 8 p.m.

Junior Institution of Engineers and Society of Engineers (Caxton Hall, Westminster).—First of a series of lectures on "The Law Relating to Engineering," by Mr. L. W. J. Costello, M.A., LL.B. (Camb.). 7.30 p.m.

TUESDAY, OCTOBER 11

University of London (British Museum).—Mr. Banister Fletcher on "Egyptian Architecture: Influences and Architectural Character." Lantern illustrations. 4.30 p.m.

Institute of Sanitary Engineers (Lectures on Practical Sanitary Science and Engineering).—Mr. R. Horton on "Plumbers' Work and Sanitary Appliances"—I. 7 p.m.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Dr. A. Wellesley Harris on "Duties of a Sanitary Inspector: General, Indoor." 7 p.m.

THURSDAY, OCTOBER 13.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Dr. A. Wellesley Harris on "Duties of a Sanitary Inspector: Offensive Trades, etc." 7 p.m.

University of London, University College (The Carpenters' Company School of Architecture Lectures).—Mr. H. V. Lanchester on Town Planning: "City Developments at the Present Time." 6 p.m.

FRIDAY, OCTOBER 14.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Dr. G. F. McCleary on "Infectious Diseases." 7 p.m.

Glasgow Architectural Craftsmen's Society.—Presidential address, by Mr. J. Bowan. 8 p.m.

ILLUSTRATIONS.

The Quadriga for Constitution-Hill Arch.

THE quadriga to be erected on the Constitution-hill arch at Hyde Park-corner is given as one of our plates this week. The bronzed four-horse chariot, weighing upwards of 30 tons, has taken its designer and sculptor, Captain Adrian Jones, just upon three years to complete. He has named the group "Peace," as a compliment to the late King Edward. "Peace" is represented by a figure holding aloft a laurel wreath in the right hand, and in the left an olive-branch. This figure towers from the back of the chariot. At her feet crouches a boy charioteer, driving four powerful prancing horses. Round the chariot itself are decorations of the Rose, the Shamrock, and the Thistle in the form of scroll work ornamentation. The horses have been made double life-size; they measure nearly 20 ft. from the ground to the heads. From the tip of the wing of "Peace" to the plinth is a distance of 32 ft.

The figures are now being cast at the foundry at Thames Ditton. Every piece and section will be numbered and fitted, and on the occasion of erection will be raised by cranes to the top of the arch at Hyde Park-corner.

Lych Gates.

THE lych gate at Christ Church, Totland, was erected in memory of Frederick Wildman Burnett (died 1904) by his widow. The gate at North Stoneham, Hants, was erected by Dr. Macarthur, the Bishop of Southampton, in memory of his wife. Both these lych gates were made from the timbers of H.M.S. *Thunderer* by Mr. J. H. King, of Blackwater, I.W. The stone sub-structure was in each case carried out by Messrs. Garrett & Haysom, of Southampton. The architect was Mr. Percy G. Stone, F.R.I.B.A.

Crookes Cemetery, Sheffield.

WE illustrate the exterior of the chapel and mortuary aisle recently erected, with a block plan of the general lay-out of the cemetery, some 30 acres in extent.

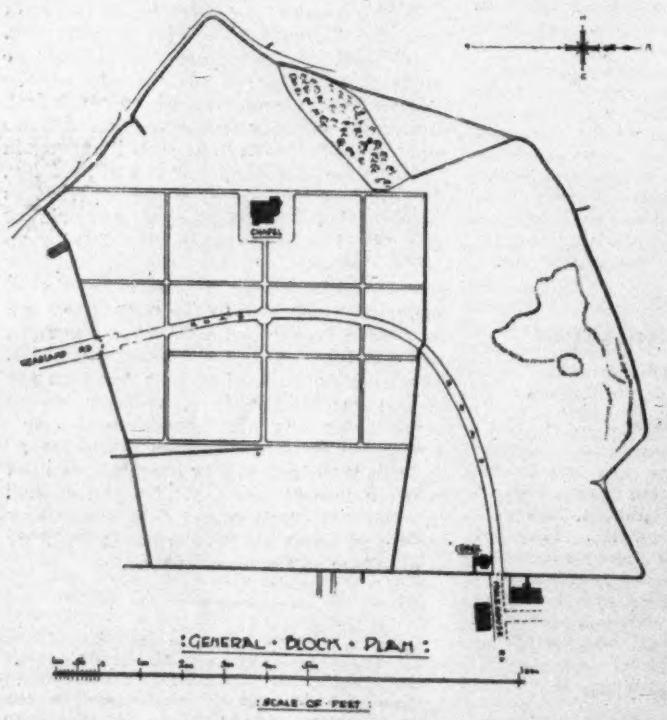
The position is an ideal one on the high hills at the west end of the city, commanding an extensive prospect of the picturesque Rivelin Valley.

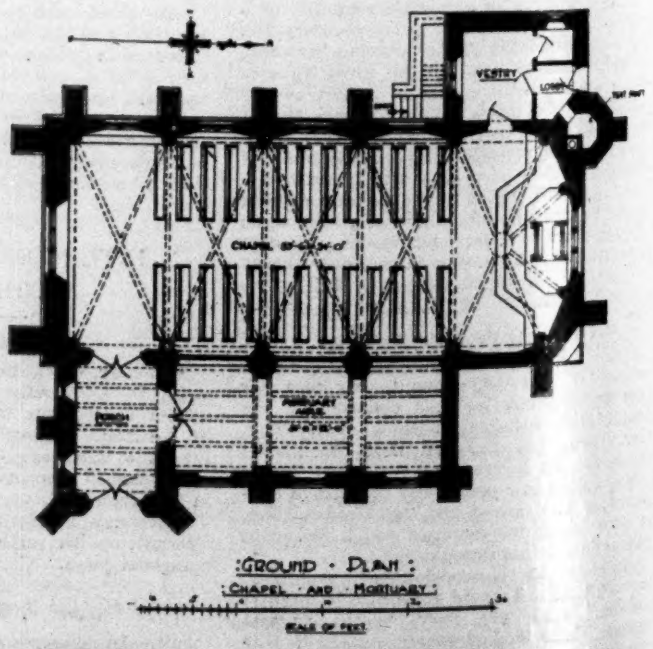
The general scheme as designed by the architects included a second chapel, with gate-house tower and offices at the principal entrance in Headland-road, which have not yet been carried out.

The buildings are executed in Rivelin random coursed walling, hammer-dressed, with dressing of Monk's Park stone, for window tracery, doorways, etc., and hard gritstone for base and string courses. The chapel roof is covered with the Buttermere Green Slate Company's heavy seconds slates, the mortuary aisle being roofed with arched ribs and slabs of Stuart's granolithic stone. The interior is groined in cement concrete on ribs of Stuart's stone, with Monk's Park springers and shafts.

The church floors have terrazzo and wood flooring, and the chancel dove and white marble and steps.

The whole have been carried out from the designs of Messrs. C. & C. M. Hadfield, Cairns Chambers, Sheffield, by Messrs. D. O'Neill & Son, the contractors. Mr. C. Haywood was the clerk of works.





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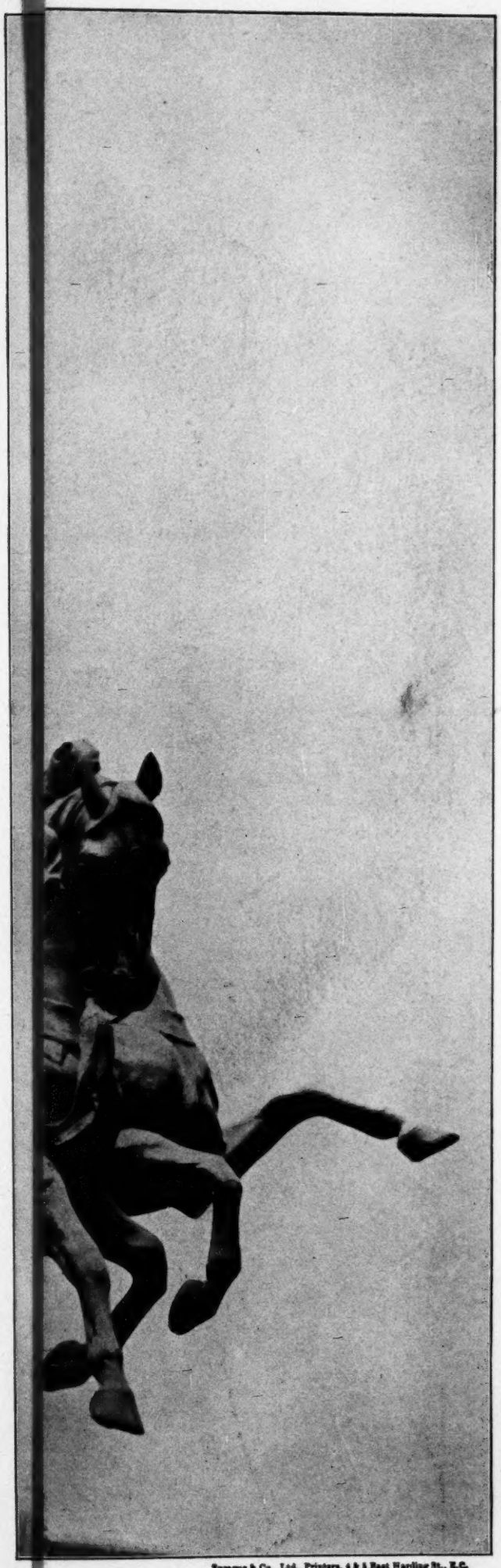

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The figures are now being cast at the foundry at Thames Ditton. Every piece and section will be numbered and fitted, and on the occasion of erection will be raised by cranes to the top of the arch at Hyde Park-corner.

Lych Gates.

THE lych gate at Christ Church, Totland, was erected in memory of Frederick Wildman Burnett (died 1904) by his widow. The gate at North Stoneham, Hants, was erected by Dr. Macarthur, the Bishop of Southampton, in memory of his wife. Both these lych gates were made from the timbers of H.M.S. *Thunderer* by Mr. J. H. King, of Blackwater, I.W. The stone sub-structure was in each case carried out by Messrs. Garrett & Haysom, of Southampton. The architect was Mr. Percy G. Stone, F.R.I.B.A.

Crookes Cemetery, Sheffield.

WE illustrate the exterior of the chapel and mortuary aisle recently erected, with a block plan of the general lay-out of the cemetery, some 30 acres in extent.

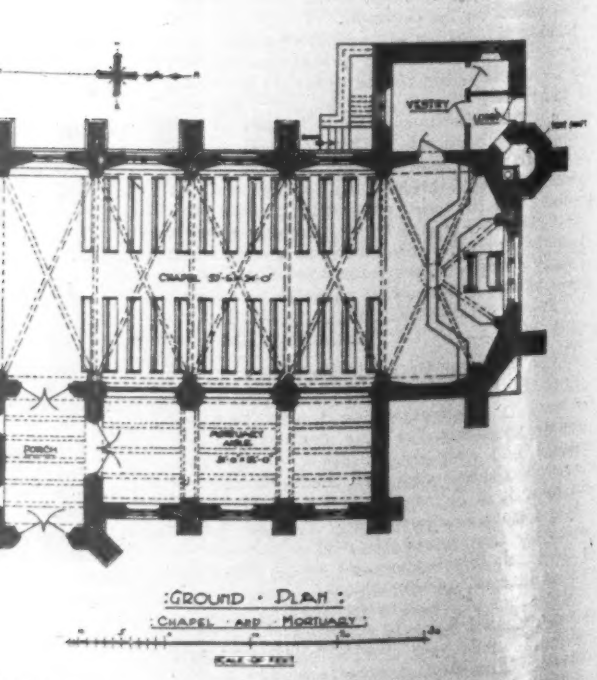
The position is an ideal one on the high hills at the west end of the city, commanding an extensive prospect of the picturesque Rivelin Valley.

The general scheme as designed by the architects included a second chapel, with gate-house tower and offices at the principal entrance in Headland-road, which have not yet been carried out.

The buildings are executed in Rivelin random coursed walling, hammer-dressed, with dressing of Monk's Park stone, for window tracery, doorways, etc., and hard gritstone for base and string courses. The chapel roof is covered with the Buttermere Green Slate Company's heavy seconds slates, the mortuary aisle being roofed with arched ribs and slabs of Stuart's granolithic stone. The interior is groined in cement concrete on ribs of Stuart's stone, with Monk's Park springers and shafts.

The church floors have terrazzo and wood flooring, and the chancel dove and white marble and steps.

The whole have been carried out from the designs of Messrs. C. & C. M. Hadfield, Cairns Chambers, Sheffield, by Messrs. D. O'Neill & Son, the contractors. Mr. C. Haywood was the clerk of works.



ffield.

QUADRIGA TO SURMOUNT T

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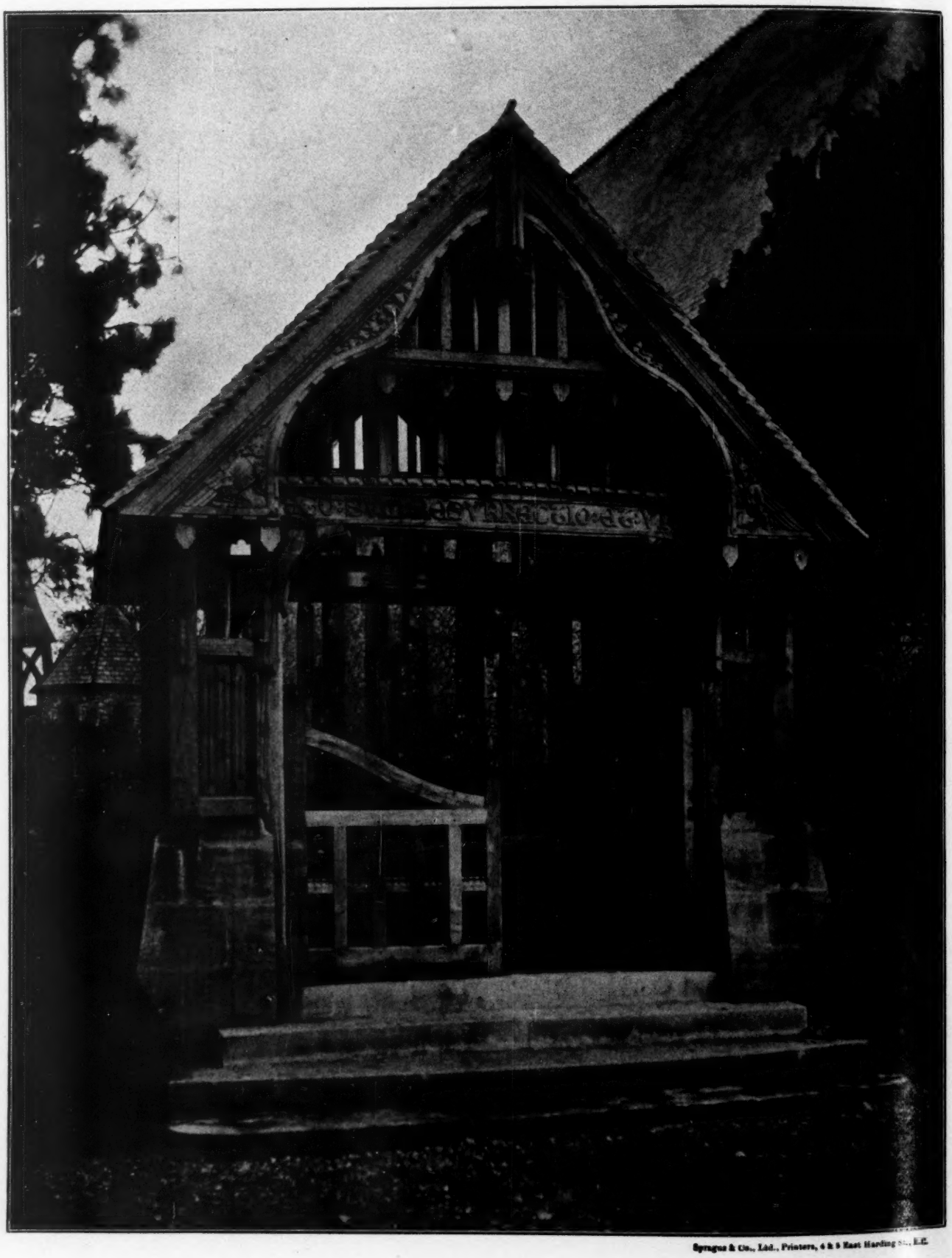
O SURMOUNT THE TRIUMPHAL ARCH, CONSTITUTION HILL.—By Captain Adrian Jones.



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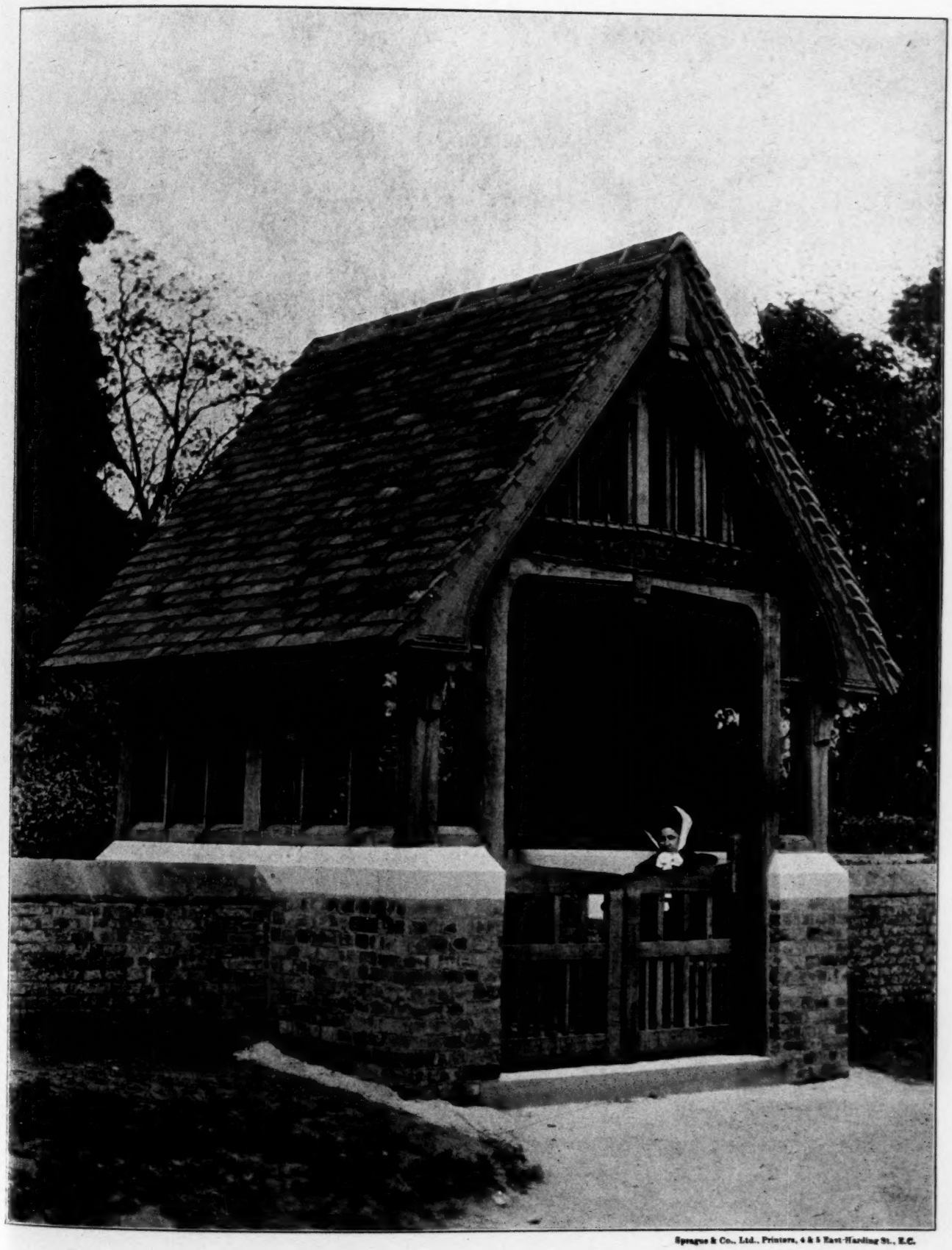
LYCH GATE, CHRIST CHURCH, TOTLAND.—Mr. Percy G. Stone, F.R.I.B.A., Architect.



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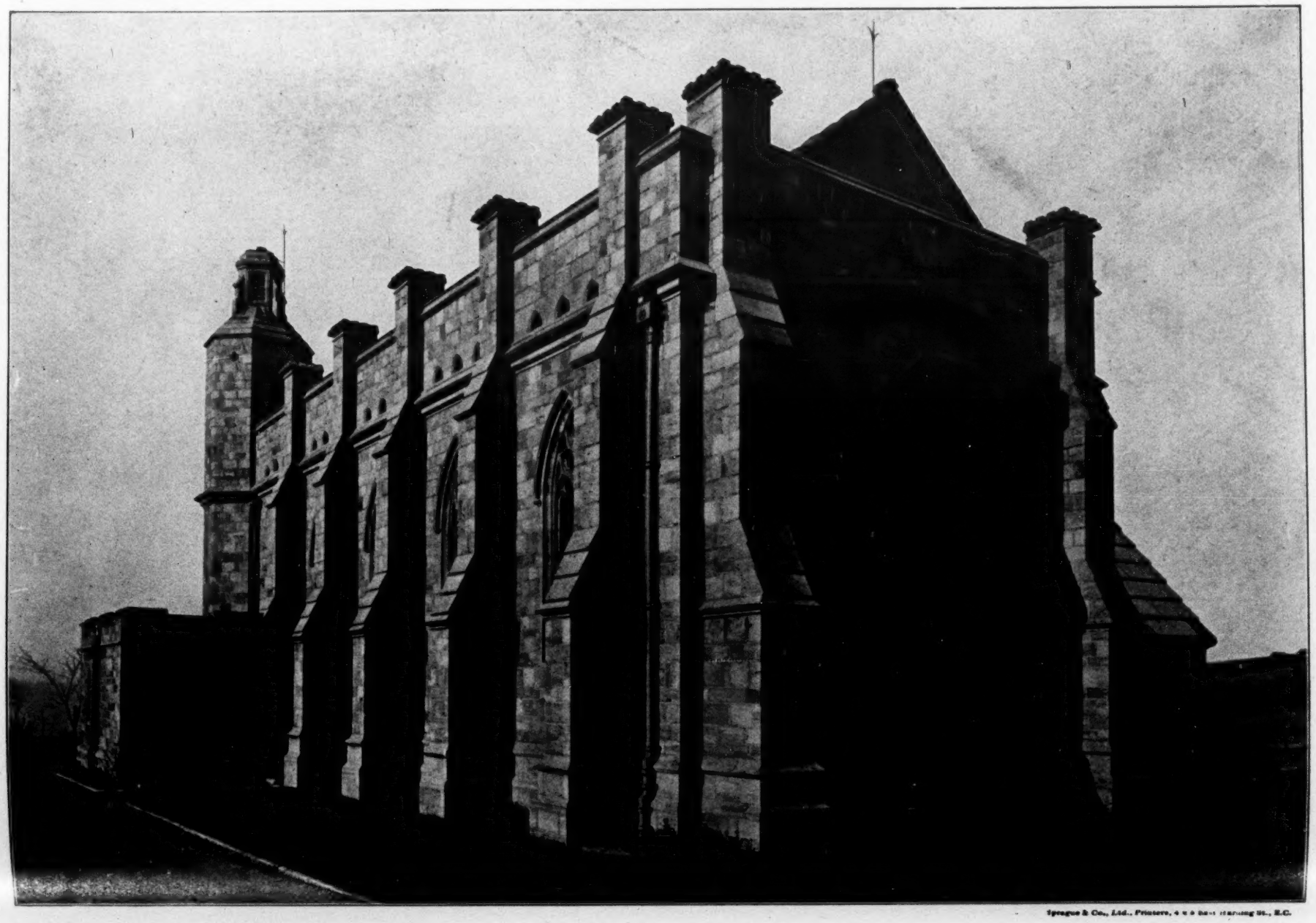
LYCH GATE, NORTH STONEHAM, HANTS.—Mr. Percy G. Stone, F.R.I.B.A., Architect.



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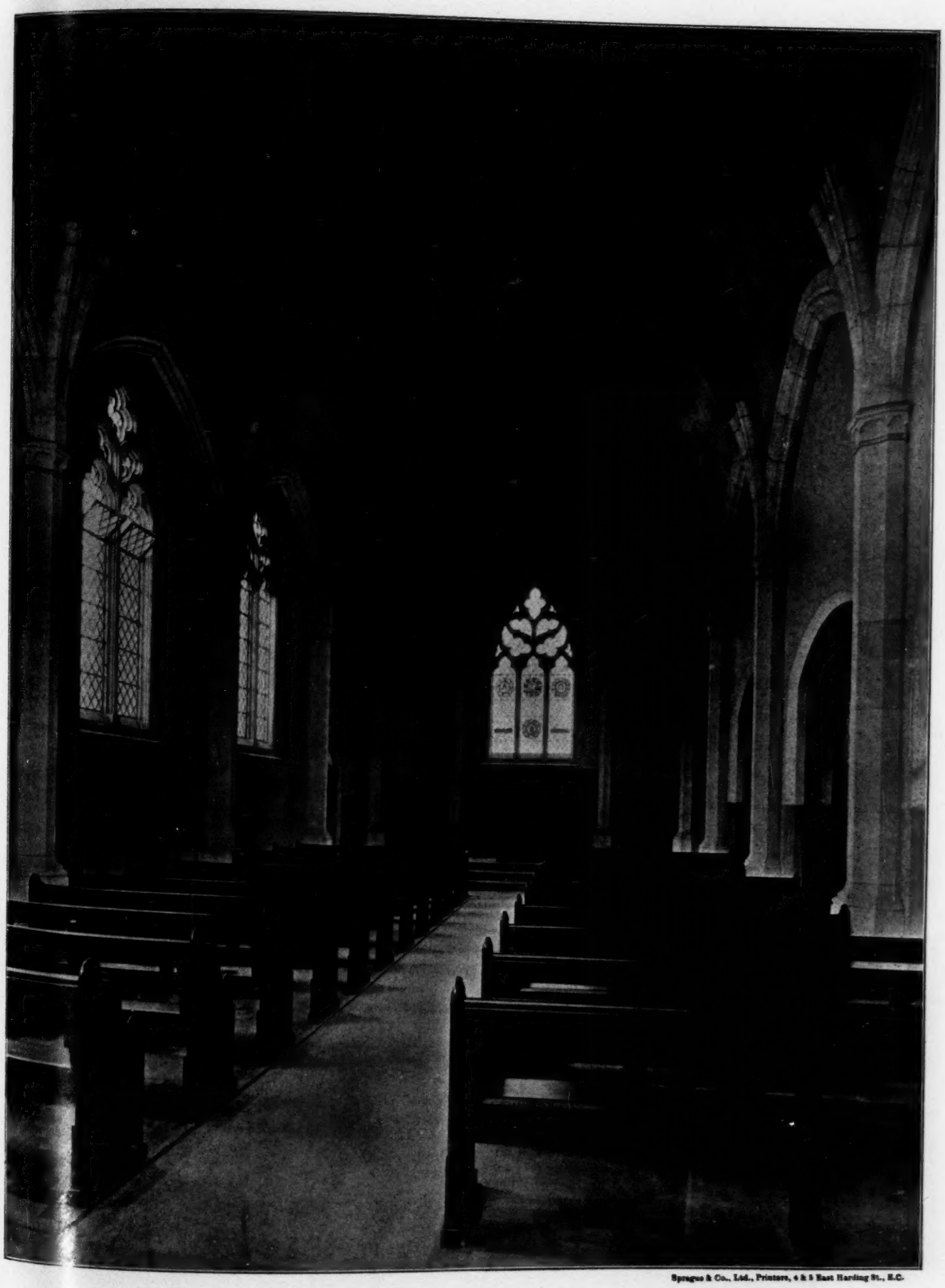
EXTERIOR OF CHAPEL, CROOKES CEMETERY, SHEFFIELD.—Messrs. C. & C. M. Hadfield, Architects.



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INTERIOR OF CHAPEL, CROOKES CEMETERY, SHEFFIELD.—MESSRS. C. & C. M. HADFIELD, ARCHITECTS.

EXTERIOR OF CHAPEL, CROOKES CEMETERY, SHEFFIELD.—MESSRS. C. & C. M. HADFIELD, ARCHITECTS.

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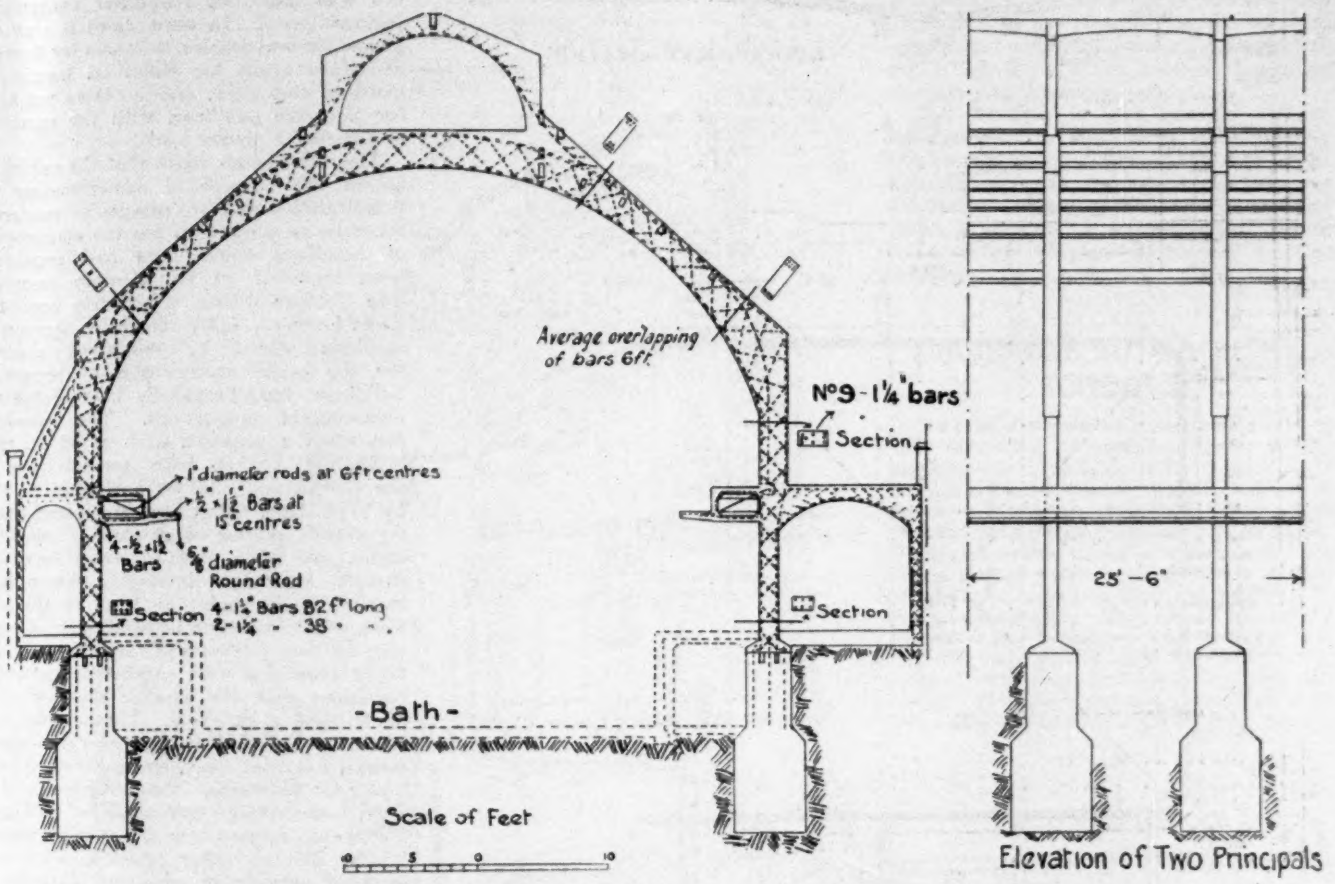
MONTHLY REVIEW *of* CONSTRUCTION.


Average overlapping of bars 6ft.
No 9 - 1¼" bars
Section
1" diameter rods at 6ft centres
½" × ½" Bars at 15" centres
4 - ½" × ½" Bars
⅝" diameter Round Rod
Section 4 - 1¼" Bars 82 ft long
2 - 1¼" " 38 " "
Section
-Bath-
Scale of Feet
0 5 0 10
25' - 6"
Elevation of Two Principals

Hammersmith Baths. Figs. F and G: Roof Construction.

BATHS AT HAMMERSMITH IN REINFORCED CONCRETE.

A REMARKABLE and bold step was taken when the erection of the Hammersmith Baths was commenced and now successfully completed, under the supervision and to the design of Mr. J. Ernest Franck, A.R.I.B.A., the special reinforced concrete work being carried out by the New Expanded Metal Company, Ltd., and Kahn trussed bars were used where bar reinforcement was necessary.

The deep end of the first-class swimming-bath is shown in section in Fig. A, and in plan in Fig. B, where the reinforcement and the stiffening beams or ribbed construction of the floor will be seen, the deep end being dished out for high diving. The pond walls are surrounded by a subway, and strengthened by buttresses, which are continuations of the ribs, as will be seen from Fig. A. and also in detail in Figs. C, D, E; Fig. C showing the elevation of the subway side elevation, and of the buttress and struts, and a section of the bath wall; while Figs. D and E give details of the buttress and struts reinforced as shown, the top struts also carrying the gangway floor. The subway is used for the pipes, etc., connected with the ponds, and its advantages are obvious; also if the pond walls leak the flaw could be immediately detected. (Figs. on page 398.)

The construction and form of the roof is, however, the most interesting feature of this building. As the architect required that no projections should be allowed in the walls, and that the roof should be of semi-circular section free of tie-rods, the only alternative to reinforced concrete was a steel roof rigidly connected to steel stanchions in the thickness of the walls, but this meant projections in the wall faces. He also required a flat soffit to the side galleries, the portion between this soffit and the gangway to be used as an air duct for heating and ventilating the building.

The arched roof trusses were therefore designed to meet these requirements from the following particulars. The arched ribs were taken as standing independently on the ground floor, 12 ft. apart, the weight of the galleries being taken into account, but their assistance in stiffening the stanchions was not allowed for.

Taking the arch ribs and purlins at 1½ cwt. per cubic foot, and the roof covering at ¼ cwt. per square foot, the weight of half the arch was equivalent to a vertical pressure of 18·9 tons, and a horizontal thrust of 14·2 tons.

Wind pressure was taken at 50 lb. per square foot of vertical height of roof.

Messrs. Kirkaldy tested to destruction two 8-ft. columns 10 in. by 10 in. eight months old, reinforced with ¼-in. Kahn bars, their failure taking place at 99 and 107 tons respectively.

The weight calculated to be carried by any one of the stanchions about 1 ft. below the underside of the gallery was 32 tons maximum, the stanchion sections at this point generally being 1 ft. 5 in. by 1 ft. concrete reinforced with No. 6 1¼-in. bars. The steel bars were required to have a tensile strength of not less than 28 tons per square inch, and not more than 32 tons, with an elongation of 20 per cent. on 8 in.

The concrete was composed of clean, sharp, broken flint gravel, sand, and cement, in the proportions of 27 cubic ft. gravel, 13½ cubic ft. sand, cement 6½ cwt., this mixture resulting in a concrete of proportions about 4 to 1. Its strength from the tests of 6-in. cubes had an average crushing strength of 140 tons per square foot. Above the gallery the stanchion was reinforced with No. 9 1¼-in. Kahn bars, carried round the principals, and further strengthened with two 1-in. bars extending for 18 ft. at the crown of the arch.

On the left side the buttress has two 1¼-in. Kahn bars extending into the arch, and on the right side there are four 1-in. bars carried across the arches of the corridor.

In the secondary trusses of the skylights there are two 1¼-in. bars. The large purlins are reinforced with two ¾-in. bars, and the smaller ones which carry the ceiling of fibrous plaster have one ¾-in. Kahn bar.

The bars were overlapped a distance of 6 ft. average, as no welded joints were allowed, neither should they be in any such work, for such welds are hidden and unreliable, as indifferent workmanship can easily creep in and never be detected.

The side galleries are formed in reinforced concrete, and have air ducts as shown.

Brackets were constructed opposite the principals, and in the wall was fixed a 1-in. bar to which 1-in. round bars were hooked and placed diagonally, passing through the air duct to the lower portion of the gallery. Between the brackets reinforcement of ½-in. Kahn bars, spaced 15 in. apart, were placed, two ¾-in. Kahn bars placed longitudinally were fixed between the brackets next the wall, and also beneath the step formed in the gallery, and at the front edge and all round the gallery two ⅝-in. round rods were placed.

Below the ground floor level the concrete bases were reinforced with nine 1¼-in. diameter rods. Two principals were tested by Mr. Kirkaldy by means of bags filled with ballast placed in cradles from the roof. The roof was loaded to 50 per cent. beyond the

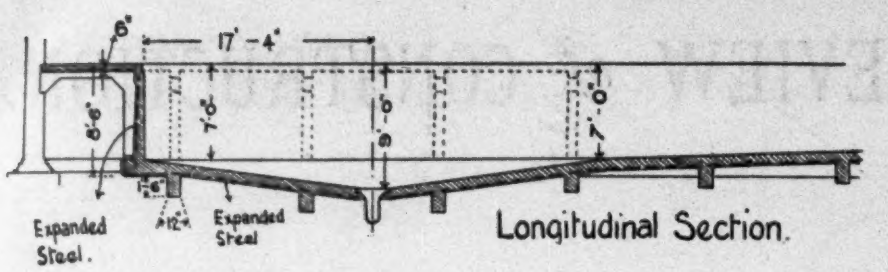
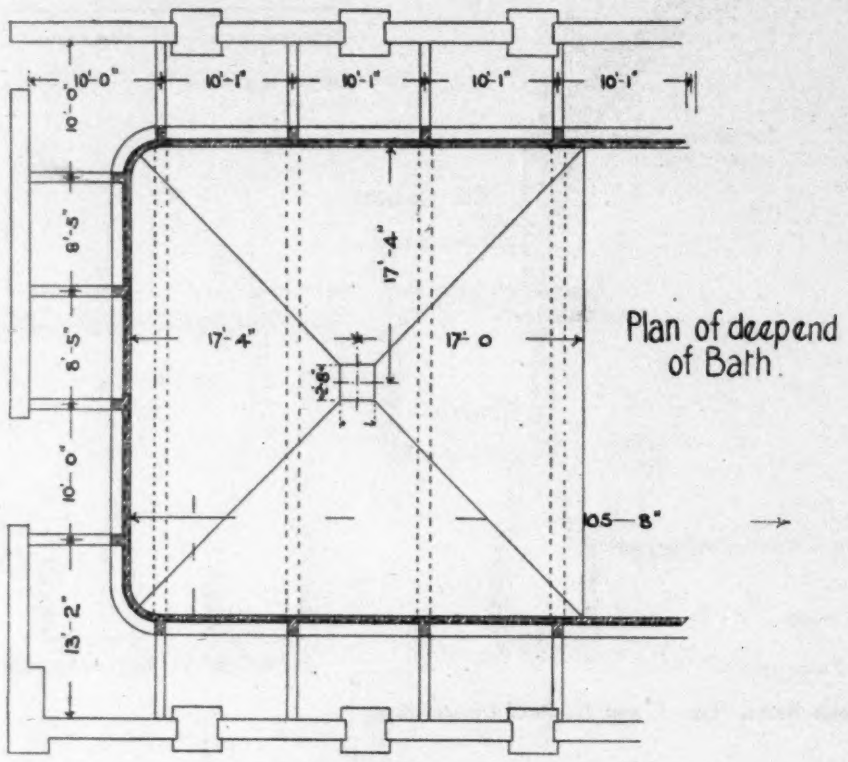
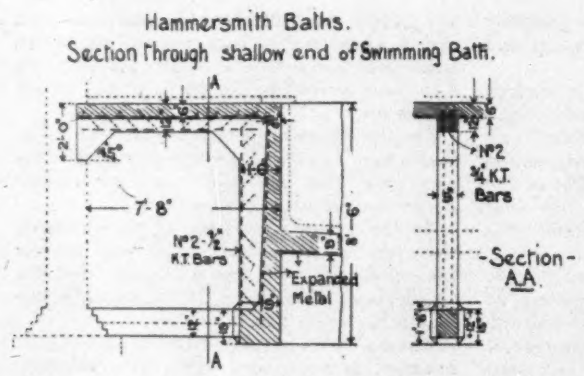


Fig. A.



Hammersmith Baths. Fig. B.

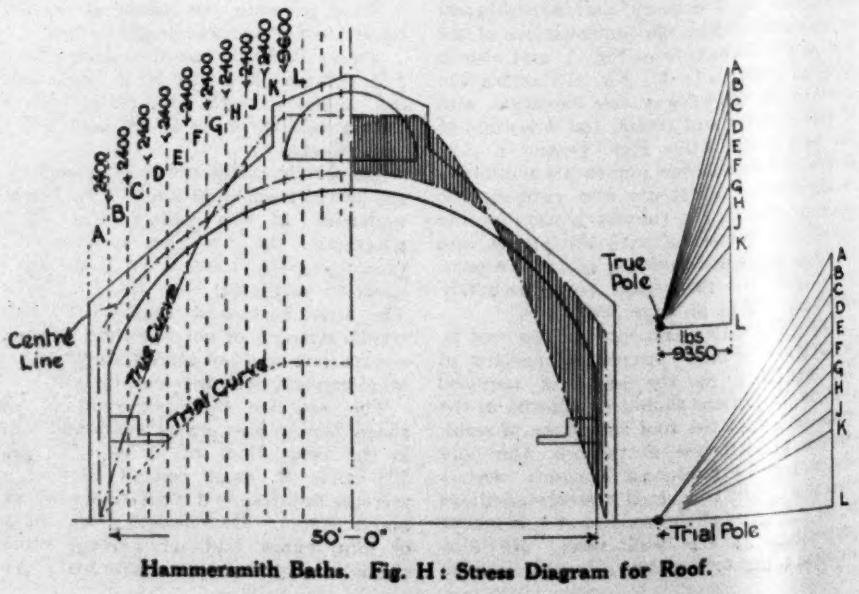


Figs. C, D, and E.

permanent dead loads, which resulted in a deflection of only $\frac{1}{32}$ part of an inch. On the weights being removed the roof regained its original position, and, moreover, there was no spread at the abutments during the imposition of the load.

Details of the roof trusses are shown in Figs. F and G, and Fig. H shows the stress diagram with the polar diagrams J and K. The particulars used in calculating the stresses were—roof trusses, 12 ft. apart; load at 100 lb. per square foot dead and live; haunches, space A, location of maximum bending moment. B.M. = 9,350 lb. × 18·5 ft. × 12 in. = 2,075,700 in. pounds. Direct thrust, 3·375 × 9,600 lb. = 32,400 lb.; load due to gallery, 12 ft. × 6 ft. × 200 lb. = 14,400; B.M. due to gallery = 14,400 × 36 in. = 518,400 in. pounds.

The reinforcement used was the Kahn bar of the Trussed Concrete Steel Company, the inclined shear members being part of the bar, and are thus obtained by stamping out parts of the sides of the bar and bending these at an angle.



Hammersmith Baths. Fig. H: Stress Diagram for Roof.

EXHIBITION BUILDINGS:

I.—REINFORCED CONCRETE (COIGNET SYSTEM).

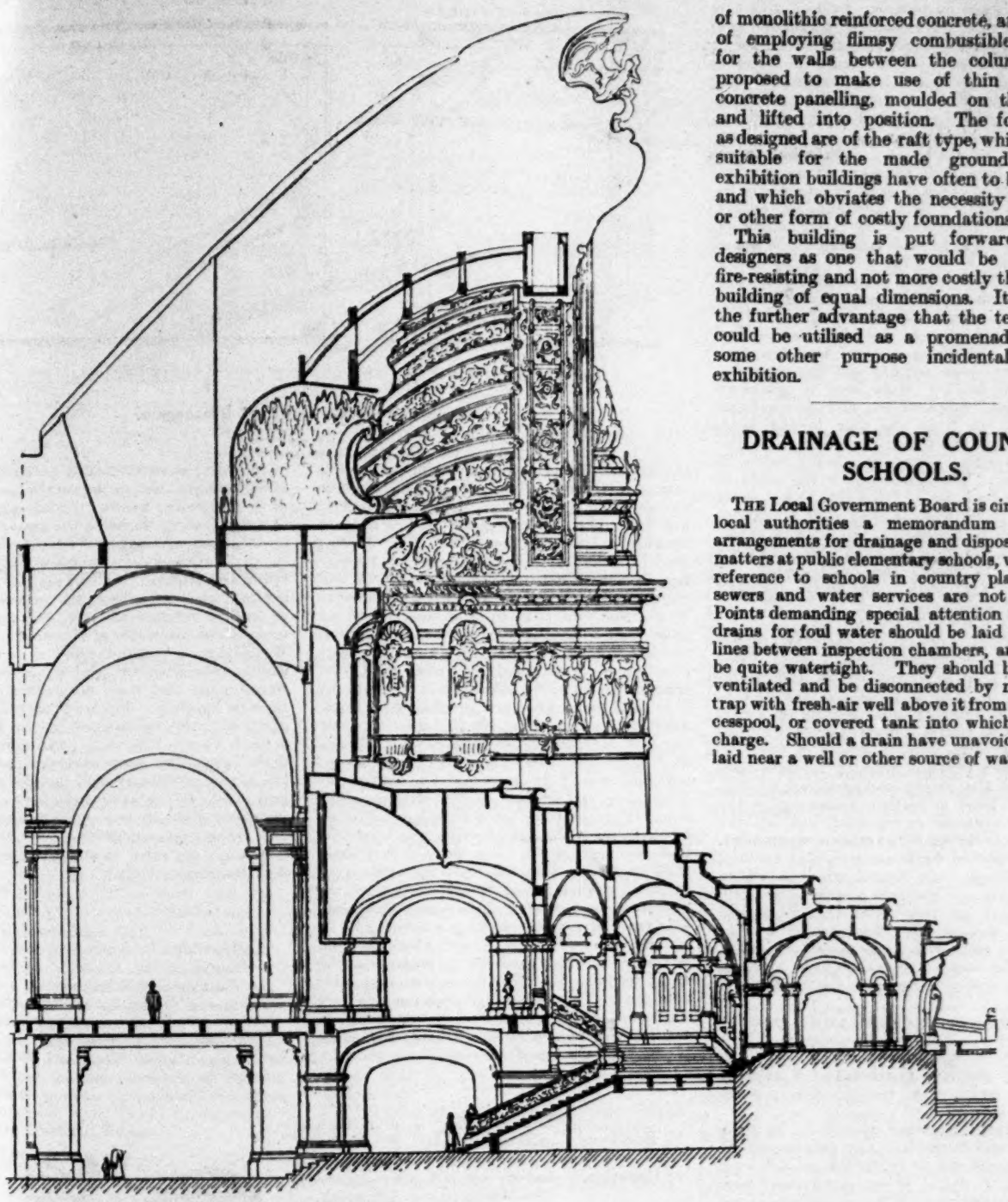
ALTHOUGH many of the buildings at the last Paris Exhibition were constructed of steel cased in wood and plaster, extensive use was made of reinforced concrete in various forms. In some cases it was employed for foundations, in others for flooring, in others again for structural framing in place of steel work, and in others yet again for complete buildings, with the exception of decorative plaster work.

There can be no doubt that the exhibition served the purpose of demonstrating the practicability and advantages of reinforced concrete as a material for the construction of buildings where steel had previously been regarded as an absolute necessity. The Château d'Eau, of which a section is given herewith aptly illustrates the special facilities offered by reinforced concrete for the rapid construction of temporary buildings characterised by bold design and monumental proportions. The structure comprised a principal arch of 80 ft. span measuring 130 ft. from ground level to the crown, and built as a truss 6 ft. wide by 9 ft. deep. This arch supported heavy decorative plaster work and a shell-like niche, the back part of which formed a shallow fountain, discharging water in a cascade 30 ft. high. In front of the arch were other fountains descending in a series step by step as shown in the drawing. The lower fountains were supported by arched partitions with the average span of about 35 ft. and 4 in. thick. These arches also carried the domed ceilings over the monumental staircase, halls, and galleries situated under the fountains. Retaining walls, 22 ft. high, were built on each side of the Château d'Eau to support the adjoining galleries, which, like all other portions, were constructed entirely in reinforced concrete on the Coignet system.

This structure is of interest as one of the first examples of reinforced concrete applied on a large scale to the design of exhibition buildings. It should be noted, however, that the Coignet system was also represented at Paris by the extensive floors and balconies in the Palais d'Horticulture and the floors of the Pavilion de la Ville de Paris.

While the Château d'Eau was distinctly instructive as a monumental building of slender proportions supporting heavy loads with perfect safety, it scarcely points the way to a solution of the problem confronting the designer of ordinary buildings for exhibition purposes.

Notwithstanding the obvious temptations placed before exhibition architects by timber as a convenient and economical material, light steelwork has been largely preferred during recent years. But, as clearly indicated by the Brussels disaster, steelwork



The Chateau d'Eau, Paris: Section at Centre.

is very little better than wood in the event of fire. Consequently it appears necessary that steel columns, trusses, and beams should be effectively cased in fire-resisting materials in order to afford reasonable security to the public as well as to the property of the exhibitors. The protection of steel members is perfectly feasible and numerous types of casing material and methods of application being available. But from the standpoint of the reinforced concrete specialist it is urged that columns and beams of reinforced concrete are more economical than protected steelwork, because the concrete saves the double purpose of resisting fire and of bearing a considerable proportion of the loads, while the amount of steel required is comparatively small. Moreover, it is pointed out that, as reinforced concrete contains only a small percentage of steel in the form of thin rods and strips, the metal cannot become overheated, as may happen to encased steel, notwithstanding the care bestowed on its protection.

Hence a good case is made out for reinforced concrete in all exhibition buildings, more particularly for foundations, floors, beams, and columns. There is no doubt, however, that steelwork will hold its own for roofs of considerable span even in buildings where reinforced concrete is employed for other structural elements. Steel roof trusses can readily be protected by light fire-resisting material, but even this precaution need not always be taken providing combustible materials are avoided in the framing, and if armoured glass is used in all skylights.

An important point in all exhibition buildings is to take measures for insuring the integrity of the roof supports throughout the progress of any fire. Providing this condition is assured, it is not improbable that, in view of the considerable height at which exhibition roofs are situated, an ordinary fire could be got under control before seriously affecting the roof structure.

Messrs. Edmond Coignet, Ltd., of Westminster, S.W., have worked out a design for a typical building suitable for exhibition purposes. This building provides for two longitudinal spaces each 30 ft. wide, affording accommodation for exhibits and the necessary gangways. The central avenue is 15 ft. wide, bounded on either side by reinforced concrete columns, as otherwise the span of the beams forming ties for the roof would be too great for economical construction. The skeleton of the building would be constructed entirely of monolithic reinforced concrete, and, instead of employing flimsy combustible material for the walls between the columns, it is proposed to make use of thin reinforced concrete panelling, moulded on the ground and lifted into position. The foundations as designed are of the raft type, which is very suitable for the made ground whereon exhibition buildings have often to be erected, and which obviates the necessity for piling or other form of costly foundations.

This building is put forward by the designers as one that would be absolutely fire-resisting and not more costly than a steel building of equal dimensions. It possesses the further advantage that the terrace roof could be utilised as a promenade, or for some other purpose incidental to the exhibition.

DRAINAGE OF COUNTRY SCHOOLS.

THE Local Government Board is circulating to local authorities a memorandum as to the arrangements for drainage and disposal of waste matters at public elementary schools, with special reference to schools in country places where sewers and water services are not available. Points demanding special attention are: The drains for foul water should be laid in straight lines between inspection chambers, and so as to be quite watertight. They should be properly ventilated and be disconnected by means of a trap with fresh-air well above it from any sewer, cesspool, or covered tank into which they discharge. Should a drain have unavoidably to be laid near a well or other source of water supply, the drain, if in stoneware pipes, should be surrounded with cement concrete at least 6 in. in thickness; or should be of cast-iron pipes with lead joints. It is desirable that pipes of 4 in. diameter should have a fall of not less than 1 in 48, and 6-in. pipes of not less than 1 in 60.

Cesspools and tanks should have walls and floors so constructed as to be quite watertight (this also applies to the floors of filters and so much of their external walls as are below the surface of the ground). They should not be less than 50 ft. distant from the school or from any dwelling-house, and should be as far as possible from any well or other underground source of drinking water which might be in danger of being polluted by leakage. The sewage disposal works should be fenced in so that they cannot be interfered with by the children. Cesspools and covered tanks should be properly ventilated, and should be in positions conveniently accessible by a tank cart for the purpose of emptying. The capacity of tanks which overflow on to a filter bed or irrigation area need not exceed from one to two days' volume of sewage, but cesspools which have to be emptied from time to time should be of larger capacity. Filter beds should not be less than 2 ft. 6 in. in depth, and the filtering medium should consist of some hard and clean material with 6 in. of sand or other fine material at the top, care being taken that the liquid is evenly distributed over the surface of the filter bed. If no land treatment is provided, the area of the

filter bed should be sufficient to deal with the liquid at a rate not exceeding 70 gallons per square yard per day for a filter 2 ft. 6 in. deep, or at a proportionately greater rate for a deeper filter. When subsequent land treatment of the effluent is adopted, a rate of filtration twice as rapid as the above may be allowed. Land for irrigation should have an adequate area, and suitable soil should be at a sufficient distance from any inhabited building or sources of water supply so as not to create a nuisance or to pollute the water. The memorandum quotes the following arrangement of earth closets as having been found to work satisfactorily at some rural schools :—

"At the back of the range of closets is a covered 'earth chamber,' extending the whole length of the range and measuring some 7 ft. from front to back. At the back the chamber is partially divided by a dwarf wall into two compartments—one for dry and the other for used earth—leaving space for a gangway between these compartments and the backs of the closets. In front the floor of the earth chamber is continued into the space under the closet seats with a slope towards the centre of the chamber. The space under the seats is open at the back for its full width to the earth chamber. Down the gangway runs a channel for urine which discharges into a small tank; this channel and tank are filled with peat moss or sawdust to absorb the urine; when the absorbent is saturated it has to be removed and fresh material substituted.

The mode of use is as follows :—

One or more loads of dry earth are placed in one of the compartments, and a layer of this earth 6 in. deep is spread on the floor under each closet seat, so as to receive the excreta upon it. Once a week, conveniently on Saturdays, the fæcal matter is covered up with a fresh layer of the earth until in course of time the heap reaches a depth of about 2 ft. It is then removed to the empty compartment to dry, and a fresh layer of earth is spread under the seats. This process is repeated until all the earth has been shifted to the other compartment. It is then worked back again in like manner, using first the portions of earth which have been drying longest. When this process is properly carried out it has been found that fæces and paper are inoffensively disintegrated by the action of the earth with its contained organisms, and that the same earth can be used over and over again without the need for addition or removal.

Where this system is adopted careful attention must be given to the following points :—

1. Impervious materials must be used in all places where earth or fæcal matter is liable to come in contact with the structure. Wood should not be used.

2. The earth chamber should be properly roofed to exclude rainfall, and well ventilated. Its floor should not be below the ground level.

3. All urine should be conveyed away from the earth chamber, received in an absorbent, and removed.

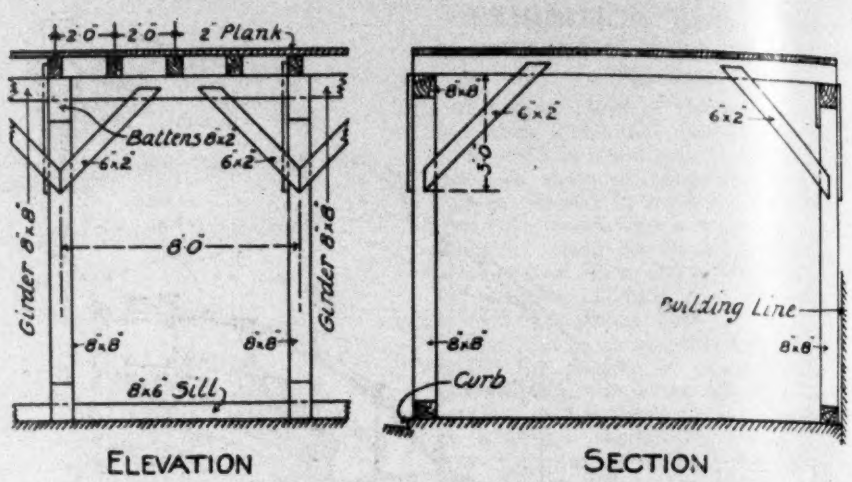
4. Suitable dry earth should be used, preferably top soil from a field or garden 'in good heart.' Ashes are unsuitable.

5. Careful and intelligent attention must be paid to the working of the closets by a person specially detailed for this purpose, and the earth must be shifted and redistributed at least once a week. It must not be allowed to get saturated with liquid.

A door for access to the earth chamber will be needed, but should be kept locked when not in use."

Footpath Protection During Building Operations.

On this page we give an elevation and section illustrating the sheds required by the New York Building Code for the protection of foot passengers during the construction of buildings on the street front. The subjoined notes are taken from a circular recently issued to inspectors by Mr. Rudolph P. Miller, Superintendent of the Bureau of Buildings for the Borough of Manhattan. The shed shall extend from building line to curb, and be completed before any part of the construction is higher than 35 ft. above the curb. Girders and sills shall be fastened to the posts by means of battens not less than 2 in. thick and with not less than two 20-penny spikes in each member connected. Longitudinal and transverse knee braces shall be fixed at every post at an angle of about 45 deg., and connected to posts, beams, and girders, the post connexions being not less than 3 ft. from the top. The bracing shall be not less than 6 in. by 2 in., and there shall be not fewer than two 20-penny spikes in each member connected therewith. The flooring shall be spiked to the cross beams. For buildings exceeding 100 ft. high and where the foot pavement is not wider than 10 ft., beams shall be not less than 10 in. by 3 in., and spaced not more than 2 ft. apart centre to centre, girders not less than 8 in. square, posts not less than 8 in. square, and spaced not more than 8 ft. apart centre to centre, sills not less than 8 in. by 6 in., and floorboards not less than 2 in. thick. For buildings exceeding 100 ft. high and where the foot pavement is wider than 10 ft., beams shall be not less than 10 in. by 4 in., and spaced not more than 2 ft. apart centre to centre, the dimensions and spacing of the other members being as given above. For buildings exceeding 65 ft. and less than 100 ft. high, and where the foot pavement is not wider than 10 ft., beams shall be not less than 8 in. by 3 in., and spaced not more than 2 ft. apart centre to centre, the dimensions and spacing of other members being as given above. For buildings exceeding 65 ft. and less than 100 ft. high, and where the foot pavement is wider than 10 ft., beams must be 10 in. by 3 in., the other dimensions remaining unaltered. The foregoing requirements are for ordinary conditions, and do not apply to cases where unusually heavy loads are to be placed upon the top of the shed.



Protection Sheds for Foot Passengers.

Bonding New and Old Concrete.

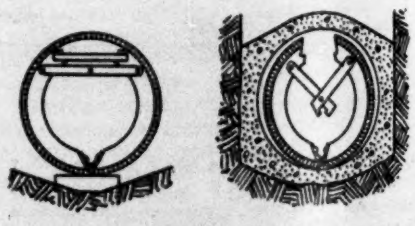
The following is a method proposed by Mr. A. Moyer, A.Am.Soc.C.E. :—Clean the surface of the old concrete with water and a stiff brush, and make several applications of dilute hydrochloric acid in the proportions of 1 to 4 with a brush containing little or no metal. Then wash the surface with clear water, scrubbing with a stiff brush to remove all dead particles, and while still wet apply the new concrete, which should be kept damp for at least a week.

Hamburg New Telephone Exchange.

With the opening of the new telephone exchange the process of modernising the extensive telephone system of Hamburg is brought to a conclusion. This exchange, with its ultimate capacity for 80,000 lines, is said to be the largest establishment of its kind in the world. The principal point in the technical construction was to attain the greatest possible celerity in getting connexions through and to place before Hamburg a service worthy of the importance of its commerce. The common battery system now preferred as the best for all large systems was introduced, together with the call distributing system in conjunction with a divided board, by the help of which each calling subscriber on receipt of his request is in a moment directed to an unoccupied operator, and thereby the certainty of the desired rapidity of working is assured. The room containing the local exchange is situated in the uppermost story, is of hall-like shape, 20 metres broad, 9 metres high, and 132 metres long. Both ends of the hall are cupola-shaped, and in one of them the distributing office is located. Along the length of the hall run switchboards for the four groups of subscribers, and in the middle are the tables of the answering board. An adjoining room on the upper story contains the supervisory office of the local exchange. From here the service in all its branches is watched and regulated, faults are detected, the varying load of traffic is noticed, and therefrom the requisite number of staff is determined. For the service of the total telephone traffic of Hamburg, Altona, and Wandsbek, a staff of 1,500 is employed, for whom commodious locker accommodation, refreshment, and rest rooms are provided in the new building. The trunk exchange for long-distance traffic is situated in the hall on the second floor. Like the local exchange, it is fitted with the most modern apparatus, and has given satisfactory evidence of the suitability and excellence of its arrangements. The trunk boards consist of twelve double rows serving 240 trunk lines, connecting with the whole of Germany and the most important cities of neighbouring countries.

Collapsible Moulds for Concrete Sewers.

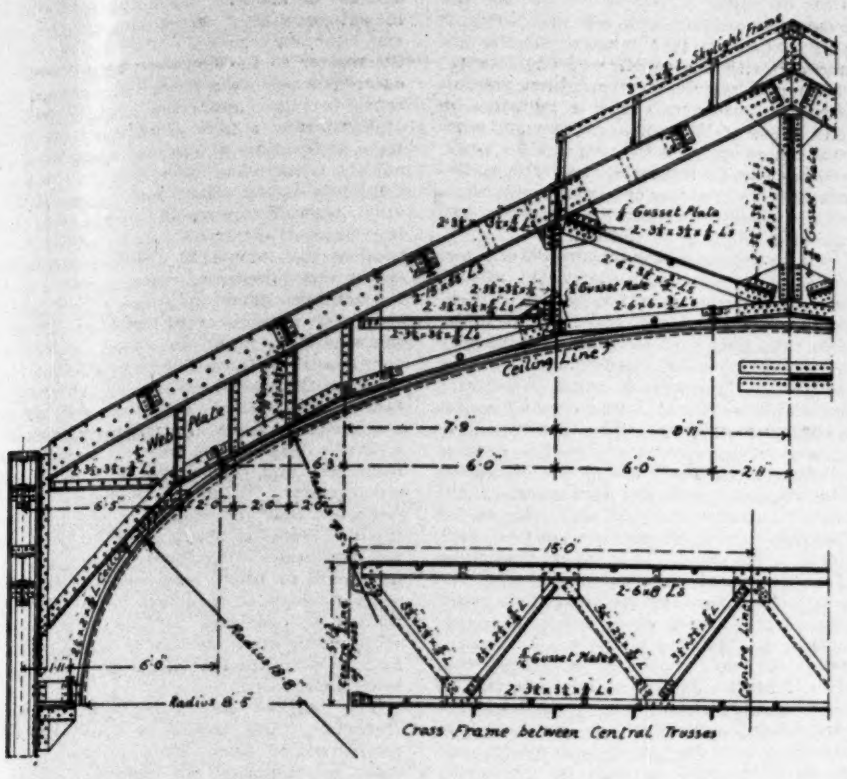
An ingenious device which will be used in the construction of a new sewer at Hartford, U.S.A., consists, as represented by the accompanying sketches, of timbering attached to hinged circular ribs held apart at the top by two hinged cross bars, and locked in that position by inserting into the gap a removable strut and a segmental section, which completes the circular mould. After the concrete deposited around the mould has hardened sufficiently, the strut is removed, the segmental section is taken away, and the mould struck by depressing the hinged cross bars. The mould can then be drawn out and employed for constructing another length of the sewer. The work at Hartford comprises some 6,000 ft. run of circular sewers of from 54 in. to 84 in. diameter. The collapsible mould here illustrated is the invention of Mr. P. O'Connor, of Hartford.



Collapsible Mould for Concrete Sewer.

Roof Trusses, Doe Memorial Library, University of California.

A noteworthy feature of the new library designed for the University of California by Mr. J. G. Howard, architect, is the main reading-room, a fine hall 210 ft. long by 54 ft. wide, with the maximum height of 45 ft. The profile of the ceiling, approximately elliptical, was struck from five centres, as shown by the accompanying section. The roof principals are of somewhat unusual form, owing to architectural requirements governing the position and slope of the roof,



Roof Trusses, Doe Memorial Library, California.

and the position of the curved ceiling. Although ample depth was secured at the middle of the principals, the distance between the ceiling and the outer surface was so small that the web was formed of steel plates so as to impart the requisite strength to the construction. Moreover, to secure the maximum possible depth for the principals, the upper and lower flanges were spaced so that the purlins when riveted in place should have their upper surface flush with the top of the principals, and that the beams carrying the ceiling supports should be flush with the bottom of the principals. Further lateral bracing was provided by lattice girders, 5 ft. 1½ in. deep, riveted between the principals at the distance of 8 ft. 11 in. from the centre line. These and other details are shown clearly on the section reproduced. The principals measure 57 ft. 4 in. from centre to centre of the supporting columns, and they are spaced apart at distances ranging from 15 ft. to 30 ft., the reason for variations being found in demands made by the architectural designs.

Lifts in the Metropolitan Building Tower, New York.

NOT only is the lift installation of the Metropolitan Life Insurance Building remarkable for the great height to which the service is extended, but also as a good example of engineering.

The lift system of the tower is quite independent of the installations serving other parts of the building, and comprises six express lifts making no stop between street level and the tenth floor, five of them running up to the forty-first floor, at the height of 525 ft., and one up to the forty-fourth floor, at the height of 586 ft. 6 in. above the street.

When carrying sixteen passengers each car is able to travel at the rate of 600 ft. per minute, this being the maximum permitted by the New York Building Regulations. Persons accustomed to the relatively deliberate movement of lifts in the United Kingdom would very likely find this speed unpleasant, but Americans rather enjoy rapid movement, and those visiting the tower of the Metropolitan Building probably find reason for congratulation in the fact that an ascent of nearly 600 ft. can be accomplished in less time than is required for reaching the tenth floor in older structures with slowly-moving lifts.

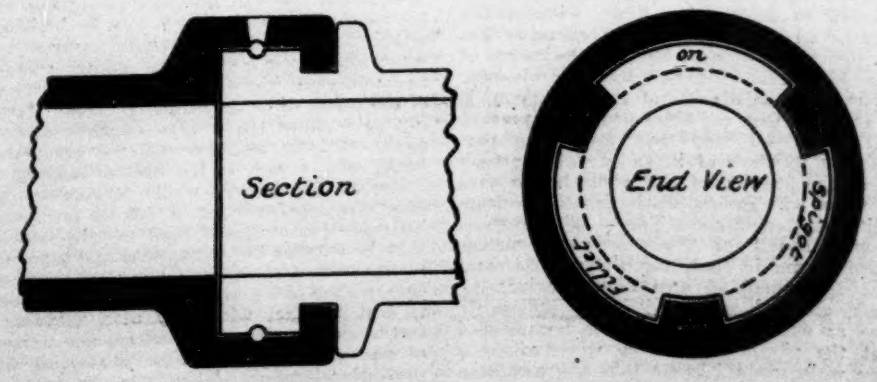
The apparatus selected is of the electric traction overhead type, having the motor and driving sheaves directly over the well. Each motor is capable of developing 40 horse-power at the speed of about sixty revolutions per minute. The driving sheaves carry six lift and counterweight cables of ¾ in. diameter, the breaking strength of each cable being 20,000 lb. A seventh cable, passing through the car, is connected with a centrifugal governor, by which the operating speed is limited automatically to 700 ft. per minute, and if by reason of mishap the speed should reach 800 ft. per minute it operates a safety device clamping the car to the guide-rails. The car is fitted with an emergency brake, enabling the attendant to switch off current and to lock the car independently of the governor.

Safety retarding devices are provided at the top of the well to check the speed of the car or counterweight in case the normal rate of travel should be exceeded, and oil buffers are installed at the bottom, which are capable of stopping a car descending at the speed of 800 ft. per minute without perceptible shock.

The installation is that of the Otis Company, and was selected after full consideration by a committee of experts, whose choice has been amply justified by the results of the careful tests conducted since the completion of the system.

A Simple Lock Joint for Socketed Pipes.

THE device illustrated here has been patented by Mr. Percy Chick, of Highworth, Wilts, for making secure and effective joints in lines of iron, steel, or earthenware socketed pipes. Instead of the usual plain socket and spigot, the pipes are made with a socket having three lugs projecting towards the centre and a spigot with three corresponding notches in the fillet around its end. After insertion of the spigot the pipe is turned sufficiently to lock the joint. In laying the pipes one man is engaged in spreading cement on the end and around the shoulder of the spigot, a second man performs the work of laying the pipe and locking the joint, and a third man completes the joint by passing cement grout through the hole so as to fill the annular groove shown in the section. If desired, the exterior shoulder on the spigot can be omitted. In that event the spaces between the lugs are filled with cement, and the joint is grouted up, as before. It is claimed by the patentee that the locking arrangement gives to a drain laid with these pipes a degree of stability that is impossible with any other joint, and that very important savings of labour and filling material can be effected.



A Simple Lock Joint for Socketed Pipes.

Tensile Strength of Large Particles in Portland Cement.

IT is commonly stated that the larger particles of cement clinker in the manufactured product are inert and of no greater value than grains of sand. This opinion is evidently fallacious in principle, for measurements of size are purely relative, and the smallest particles of cement "flour" are large compared with atoms or the hypothetical electrons of which atoms are now said to be composed. Some recent experiments conducted by Mr G. S. Binckley prove that the coarser particles of cement may possess tensile resistance to an important extent and constitute a valuable constituent of that material. They also show, however, that such particles may be quite different from the finer particles in respect of soundness, and suggest the possibility that the coarser particles sometimes cause general deterioration, affecting the whole body of the cement. Thus they may be either valuable or deleterious, an uncertainty making further investigation highly desirable

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Fire Resistance of Bricks.

IN the *Proceedings* of the Engineers' Society of Western Pennsylvania particulars are given of experiments conducted on different classes of bricks. It was found that with mixtures of magnetite and marble with kaolin the refractoriness of the magnetite brick decreases as the amount of clay increases, and the same applies to the addition of lime. With mixtures of alumina and silica, additions of kaolin bring down the melting-point of pure alumina considerably below the normal value of about 2,000° C.; and if quartz be added with 9·1 per cent. alumina, the melting-point is reduced to about 1,566° C., after which a very small amount of alumina raises the melting-point rapidly to 1,790° C.—the melting-point of pure silica. In the case of a silica brick with a certain amount of clay introduced as a binder it was found that as the amount of clay is increased the refractoriness rapidly falls off after the added amount reaches 6 per cent. This points to the desirability of making bricks either very high in silica or entirely of clay. Other investigations indicated the effect of potash, soda, lime, magnesia and iron on the melting-point of clay. Slight additions of the fluxes named reduced the melting-point, the reduction being proportionate to the quantities added.

THE ARCHITECTURAL ASSOCIATION:

SYLLABUS OF MEETINGS.

THE following is the syllabus of meetings, etc., of the Architectual Association for the new session :—

October 10.—Annual General Meeting. President's Address and Distribution of Prizes. Arthur Keen, F.R.I.B.A.

October 24.—The Architectural Association Excursion to York and District, 1910. Edwin Gunn, A.R.I.B.A.

November 14.—*That Fine Draughtsmanship Conduces to Fine Architecture. Gerald C. Horsley, F.R.I.B.A.

November 23.—Conversazione at 8 p.m.

November 28.—Notes on some French Churches. Andrew Oliver, A.R.I.B.A.

December 12.—*That Foreign Travel and Study Retard the Development of a National Style. G. Leonard Elkington, A.R.I.B.A.

January 9.—Architecture as Plan and Section. H. H. Statham, F.R.I.B.A.

January 23.—*Germany and the Germans. Theodore Fyfe, F.R.I.B.A.

February 6.—Greek Buildings. Professor W. R. Lethaby, F.R.I.B.A.

February 20.—*That Brick is Eminently Suitable for Large Town Buildings. W. G. Newton, B.A.

March 6.—The Functional Application of the Orders to Modern Buildings. A. R. Jemmett, F.R.I.B.A.

March 20.—*The Legal Duty of the Architect. A. M. Brice.

April 3.—Architecture in Paintings. Professor Selwyn Image, M.A.

April 24.—Alberti and Bramante: Architecture a Profession or an Art in the Cinquecento. Professor Beresford Pite, F.R.I.B.A.

May 4.—Members' Dinner.

*Combined meetings with the Camera, Sketch, and Debate Club.

ENGINEERING SOCIETIES.

Institution of Civil Engineers.

The Council of the Institution of Civil Engineers have made the following awards in respect of papers published in Section II. of the Proceedings for the session 1909-1910 :—A "Telford" Gold Medal to Major W. W. Harts, U.S. Army (Nashville, Tenn.); a "Watt" Gold Medal to Mr. A. Trewby, M.A. (London); a Crampton Prize to Prof. A. H. Gibson and Mr. A. Ryan (Manchester); and Telford Premiums to Messrs. W. R. Baldwin-Wiseman, M.Sc. (Southampton), and O. W. Griffith, B.Sc. (London), W. E. Lilley, M.A., D.Sc. (Dublin), W. Corin (Sydney), J. A. Saner (Northwich), and F. O. Blackwell (New York). They have also awarded the Indian Premium for 1910 to Mr C. W. Lloyd-Jones (Secunderabad).

The Society of Engineers (Incorporated): Current Professional Topics.

A meeting of this Society was held on Monday at Caxton Hall, Westminster, Mr. Diogo A. Symons (President) in the chair, when a paper was read by Mr. Henry C. Adams, Assoc.M.Inst.C.E., A.M.I.Mech.E., A.M.I.E.E., etc. (Fellow), entitled "Current Professional Topics." We take the following extracts from the paper :—

"There are many subjects of professional interest to an engineer which from time to time acquire a certain degree of prominence, even being hotly debated at meetings of the various scientific societies, and then are allowed to drop into oblivion without any definite advancement having been made, but the recurrence of such topics is indicative of a general state of unrest in the profession. As regards the dignity of the profession, it is apparent that the chief need is to prevent the unqualified men from pretending that they are members of it, as by so doing they lower the prestige of the whole in the eyes of those who cannot distinguish them from legitimate engineers. There is, however, another aspect of the case which strikes nearer home by touching the pockets, and that is unqualified men doing engineering work, although such men do not necessarily pose as engineers. It must be remembered that the phrase engineering work covers a very wide range. If we take the definition given by the Institution of Civil Engineers—namely, that it consists of directing the great sources of power in Nature for the use and convenience of man—we see that there is scarcely any work that is not to some extent connected with the practice of engineering; and while in some cases the highest possible degree of professional skill is requisite, in others a moderate amount of common sense would enable any man to carry out the work. The difficulty of legislating for such varied conditions is apparent, but until a scheme is evolved which will do so very little real progress is likely to be effected.

Upon leaving school the prospective engineer should, if financial considerations permit, spend three years at an engineering college, followed by three years' apprenticeship under proper conditions. If he cannot see his way clear to do this he should, upon leaving school, article himself to an engineer for three years and concurrently attend evening classes in approved subjects. The homework in connexion with such classes should be done at the office under supervision, the difficulties explained away, and the application of the principles involved pointed out, using as far as possible for this purpose the practical work in hand in the office. It is useless passing on to the design of practical work until the theory is mastered, and therefore three years' articles are all too short when a college course is not taken in addition. As soon as possible the pupil should be put on practical work; if he has been to college this will be very soon after commencing his articles, but if not he will probably be in his third year before it can be done, it being borne in mind that in either case he must be continually instructed in the reasons underlying all that he does. During his pupilage he should visit manufacturers' works to see how the various materials employed in construction are made, and he should visit works in progress to see how they are used. As it is to the engineer's advantage that his pupils should be a credit to him, it is desirable to retain a non-college pupil for at least another year, even if it involves employing such pupil as an assistant and paying him a small salary for his services. At the end of this time he should be ready to be turned out, fully equipped with all the preliminary knowledge needful to help him to make his way in the profession of his choice.

In large professional offices and industrial concerns it is obvious that there must be many men occupying sub-administrative posts under the chief administrator at the head of the concern, but in smaller offices the chief can probably do by himself all the administrative work required, and the worker has very little chance of rising. A good administrator may be, but not necessarily, a good engineer; he is primarily a first-class business man. The administrator must know where and how to get his work done, and when it is put before him he must consider it more from the point of view of its commercial possibilities than of its beauty as an engineering design. If a man is a highly-skilled engineer he is tempted to produce designs which are perfect in all respects,. and probably expensive to manufacture or construct, while a man who has far less engineering ability, but greater commercial instincts, will produce a design which, though inferior in technique, may be far more suitable from an economic aspect. As this is eminently a commercial age, the latter man will reap the greater reward, although it must be conceded the result will not conduce to the advancement of the science and practice of engineering in its highest sense.

The author attaches considerable weight to the difficulties in the way of a young engineer obtaining a just and adequate recognition of his capabilities, and with a view to inviting criticism and discussion he puts forward the following scheme :—A central bureau should be established, where a register would be kept of the career of every engineer. When starting in business the embryo engineer should apply to have his name entered upon the books, and a page in the register bearing a distinguishing number would be allotted to him, such number being henceforth known as his registered number. Upon the page would then be entered his name, date and place of birth, brief particulars of education, and an enumeration of his higher scholastic successes, if any, together with copy of a "leaving" certificate from school or college and a note of the manner in which he is starting his professional career. That is to say, if he is serving articles the entry would give date of starting, period proposed, and name and address of master. Upon the completion of his articles a brief report upon the knowledge and experience gained should be supplied by the master to the bureau, where it would be entered in the register, and the original then sent to the apprentice. Similarly with appointments, a note should be made of the same at the time of entering upon them, and at the conclusion a certificate from the employer stating salary paid, scheme engaged upon, with description of work actually done in connexion therewith, cost of schemes, and, what is most important, a very clear definition of the exact degree of responsibility borne by the assistant should be added. From time to time any notable event, such as success at examinations, would be added, and at any time the record could be brought up to date without necessarily waiting for the termination of any particular appointment. In this way a clear, concise, unvarnished statement of a man's experience will be available for reference, and testimonials will be rendered unnecessary. It is not necessary or even desirable that the entries should stop when the man ceases to hold a subordinate position, but particulars of notable work carried out by him could be added from time to time. The space devoted to each man would be strictly limited to one page, so that if he filled it with unimportant details he would probably find in later life that his doings would have to go unrecorded.

The register should be open for public inspection, and should be considered as a public record from which certified extracts may be supplied on demand. When a vacancy for any post was advertised, instead of sending in an application as is now done, the candidate would simply write to the bureau asking that a certified copy of his page be sent to the prospective employer. Although any individual would have perfect liberty to make an independent application if he preferred, it would probably be much more to his advantage not to do so, but to rely upon his official record.

In order to give an official tone to the register the bureau should be under the control of a strong body of engineers, and probably none better could be obtained than the proposed Association of Consulting Engineers, in the membership roll of which will probably be found the majority of the leading engineers of the country.

Inasmuch as examinations have a very considerable influence upon the course of study followed by prospective candidates, the organisation and management of them is a matter of importance. The wide scope of engineering and the varied experience of the candidates render it a difficult matter to prepare a scheme of examinations in practical work which will be equally fair to all, but this difficulty does not occur with regard to the theoretical part, as that is more or less common to all branches.

The most recently-devised syllabus relating to engineering examinations is that issued in the early part of this year by the Institution of Municipal Engineers. It is decidedly "advanced," and probably embodies the most modern ideas on the subject of examinations; whatever its merits or demerits, there is at least no other examination held under like conditions. The general idea is that the papers shall be of as practical a nature as possible, but every candidate must show a satisfactory knowledge of the fundamental principles underlying the practice of his profession, the details of administration, and the various legal enactments affecting his work. In addition to the questions being practical ones, it is also sought to reproduce as far as possible the conditions under which the candidate works in his own office. To this end he is allowed to use in the examination room any text-books approved by the Examination Board, so that practically he could take his whole library if he wished. This is a startling innovation, but it is practical. If a man knows his business, he knows his reference books and where to lay his hand on any information he may require, so that the book will be of considerable use, and allow him to sit for the examination without having previously to learn by heart innumerable formulæ and other matters. If the man does not know his business he will probably spend the bulk of time allotted to answering the questions in searching through his books, and will have very little to show as a result of his work."

FOREIGN AND COLONIAL.

Workmen's Dwellings, etc., Cuba.

The "Gaceta Oficial" of August 24 contains a notice issued by the "Secretaría de Agricultura, Comercio y Trabajo," relative to the erection of 2,000 workmen's dwellings in various parts of the Republic. The project includes 1,000 houses in Havana, 90 in Mantanzas, 100 in Camagüey, and 120 in Santiago de Cuba. Work is expected to be begun shortly, and a period of two years is allowed for the erection of the 1,000 dwellings in Havana.—The "Gaceta" of August 29 publishes a decree, No. 785, relative to a contract with the "Ferrocarril de Fernández á Placetas del Sur" for the construction and working of a railway from Fernández to Placetas del Sur, where it will join the "Ferrocarril Central de la Isla."

Trade in Panama.

The following information is from the report by the British Acting Consul-General at Panama (Mr. H. O. Chalkley) on the trade of the Republic of Panama in 1909, which will shortly be issued:—

Building is proceeding rapidly in Panama, Colon, and the canal zone, and the Government has made several contracts for the erection of public buildings, including a national institute to cost 150,000*l*. All houses and tenements are of wood, and naturally the heavier materials, such as lumber, mouldings, doors, blinds, and sashes, come entirely from the United States; but British firms can and do to some extent compete in corrugated iron, cement, zinc, lead, paints, oils, putty, hinges, bolts, locks, etc. The importation of British cement is still insignificant. In 1907 the United Kingdom supplied only to the value of 130*l*., out of a total import of 6,916*l*.; in 1908, 189*l*. of a total import of 14,078*l*.; and in 1909, 371,971 kilogs., valued at 650*l*., of a total import of 11,076*l*. The fact, however, that cement is received at all from the United Kingdom and that the import for 1909, though small, reaches an appreciable quantity, would seem to indicate that British makers can compete. In view of the extent of public and private building, proceeding and proposed, there is likely to be an increasing demand for cement in the future, but orders are easily turned from one source to another by the smallest difference in prices or shipping charges.

Works in Brazil.

The "Diario" of September 4 contains a decree, No. 8,184, approving modified plans submitted by the Port of Bahia Docks Company in connexion with various works at Bahia. Among other items may be mentioned the following:—(1) The construction of a new market at a cost of 214,680 milreis (about 14,300*l*.), (2) the erection of a post office at a cost of 244,790 milreis (about 16,300*l*.), (3) the construction of a quay for coasting vessels, (4) dock enlargements, etc., Under the terms of this decree the construction of a dry dock, previously provided for, is now abandoned.

Steel Girders, Mexico.

H.M. Legation in Mexico report that the use of steel girders for structural purposes has greatly increased of late in that country on account of their resistance to earthquake shocks.

THE TOWN PLANNING EXHIBITION.

In connexion with the Town Planning Conference arranged by the Royal Institute of British Architects an International Town Planning Exhibition will be held from Monday, October 10, to Saturday, October 22, 1910, at the Royal Academy Galleries, Burlington House, Piccadilly, London, W.

The exhibition will include upwards of 1,000 plans and many models illustrating the growth of cities, ancient and modern; types of town planning; the development of suburbs, garden cities, and villages; the architectural treatment of streets and *places*; and the laying-out of parks, open spaces, and playing-fields.

The greater number of the chief exhibits shown at the Town Planning Exhibition held in Berlin in June last, and attended by over 65,000 persons, are being sent over for this exhibition. In addition to these a large number of new exhibits from England, the colonies, America, France, and other countries will be included in the exhibition, which will be one of the most comprehensive exhibitions dealing with the subject of town planning and city development ever held, and will illustrate by examples taken from all parts of the world and many periods, the development of town planning from the earliest times.

The Prefect of the Seine has sent a valuable series of plans, both ancient and modern, illustrating the development of the city of Paris, showing the great town planning works carried out at different periods, including those under the supervision of Baron Haussmann, and also showing the works now contemplated to complete the schemes prepared by Haussmann and to carry out other necessary improvements, the whole forming part of a great scheme for the improvement of the city of Paris, for which the City Council have sanctioned a total expenditure approaching thirty-six millions sterling.

Nancy, Havre, and other French towns will be represented by exhibits, and plans will be shown of the great parks—Versailles, St. Germain, etc.—so characteristic of XVIIIth-century France.

Germany, as the leading nation in modern town-planning work, will be exceptionally well represented. The premiated designs in the great competition recently held for the planning of Greater Berlin are of unique interest, especially to all those connected with London and our greater cities, as these schemes deal comprehensively with the central traffic problems connected with the development of a great city, as well as the development of the external area.

The cities of Munich, Cologne, Düsseldorf, Nuremberg, and many other growing industrial towns are sending plans, sketches, and models illustrating the way in which they are dealing with the rapid extension of their urban districts and with the difficult housing problems accompanying such growth. The industrial town of Essen, the seat of the famous Krupp Works, one of the largest industrial undertakings in the world, has made exceptional efforts to house its population in a healthy manner and to break away from the block system characteristic of so much German housing. It is hoped that Messrs. Krupp will also exhibit models of some of their industrial colonies.

The city of Ulm, which is famous in Germany for its traditional adherence to the cottage type of dwelling, owing to the far-sighted policy of Oberbürgermeister Wagner in purchasing and dealing with sufficient area of land to control the character of the city's development, is sending a very full exhibit illustrating its methods of work. The city of Frankfurt will show its methods of dealing with the opening out of old, congested areas and of executing town planning schemes by means of rearranging the boundaries of ownership, which in many German districts are a great difficulty, owing to the minute subdivision of land.

From Sweden and other Scandinavian countries there will be an interesting exhibit of plans and models illustrating how the growing towns, by purchasing land, by building houses, and facilitating building of houses by various associations, are enabled, in conjunction with successful town planning, to regulate wisely their development and put a check on excessive land speculation.

The city of Rome has sent plans illustrating the development of that most interesting of all cities at different periods, and also showing the present proposals for improving the city. The city of Milan sends an example of an Italian garden city and other interesting exhibits.

America's work will also be well represented. From Chicago has come the great series of drawings illustrating Mr Burnham's design for the improvement and development of that thriving commercial centre. These drawings display schemes for dealing in an entirely modern way with the development of a great city, its harbours, its railways, its parks, and its buildings. Other American civic and educational centres will be illustrated, as well as the system of parks and parkways which are becoming such an important feature in modern city development across the water.

Among other exhibits which may be mentioned are plans and views of Khartoum, Omdurman, Kingston (Jamaica), and other colonial towns. It is expected to give particulars of the site of the new Australian Commonwealth capital.

From nearer home, Edinburgh sends a collection of original drawings illustrating one of the few examples of comprehensive town planning that we have in Great Britain; while Professor Geddes is arranging a special series of drawings and models illustrating the development of Edinburgh and the method of conducting the city survey, so important a preliminary stage to all town-planning work.

The modern garden city and suburb development will be fully illustrated by some models illustrating Continental examples and both models and drawings fully illustrating the English garden city at Letchworth, the garden suburbs of Hampstead, Ealing, Harborne, Bournville, Port Sunlight, and others, while the Co-partnership Tenants' garden suburbs and villages will be well represented.

In addition to these drawings many examples of maps and diagrams arranged to illustrate graphically the vital statistics of population, health, traffic, and other matters essential to a proper understanding of the problem of city development will be shown, and the architectural aspect of the whole problem of town planning and city building will be fully dealt with, and some examples will be shown illustrating various methods adopted by Continental cities to encourage good architecture and restrain the building of bad examples.

The collections brought together by Dr. Hegemann for the Berlin and Düsseldorf exhibitions have made it possible to gather together such a comprehensive exhibition as will afford opportunity for studying and comparing the best town-planning work that has been carried out in the past or is being now done, and it is hoped by the Royal Institute of British Architects that all who are interested in the subject will take advantage of the opportunity thus afforded.

The exhibition will be opened on weekdays from 9 a.m. to 6 p.m.; admission 1s. It will be possible during the week beginning October 17 for students and others specially interested to visit London with tickets at less than single fare available for two and four days, and, as the exhibition will be open all the week, it is probable that organised visits will be made from Manchester, Liverpool, Sheffield, and other places.

COMPETITION NEWS.

School, Acton.

The first premiated design in the competition for the erection of new school, Rothschild-road, Acton, is that sent in by Mr. Arthur H. Fitzgerald, 12, Shipley-road, Tynemouth; the second is by Mr. Percy Brockbank, 14 and 15, County-chambers, Southend-on-Sea; and the third by Messrs. Cheers & Smith, Twickenham, Middlesex. The designs are to be exhibited, but the date and place are not yet decided.

The Gidea Park House and Cottage Exhibition of 1911.

The notice contained in our advertisement columns calling attention to the last day for submitting designs for the houses and cottages to be erected in Gidea Park for next year's exhibition should not be overlooked. The exhibition will undoubtedly be the most important demonstration of its kind yet held in this country, and the Coronation festivities will bring an enormous influx of visitors to London from all parts of the country just at the time the exhibition is being held. Some criticism has been expressed by architects of the necessity imposed on them of actually building a house or cottage. Without this condition the exhibition would, of course, be impossible. The public want to see houses, and not plans—above all, they want to see something better than the streets of unlovely houses which have been growing up round London in recent years. There is no doubt that English architects can give them what they want, and this exhibition offers an opportunity of showing what architects' houses can and ought to be like. The financial assistance offered to competitors is on the most generous scale, no less than nine-tenths

of the building cost being advanced on approved designs. It is to be hoped that full advantage will be taken of the opportunity of improving the standard of suburban architecture, and that the generosity of the promoters of the exhibition will meet with an adequate response. A distinguished list of vice-presidents shows the remarkable interest which these competitions have aroused outside the architectural profession. These include the Countess of Warwick, the Bishops of London and St. Albans, Mr. J. St. Leo Strachey, and Mr. H. G. Wells

Central Library for Deptford.

The Public Libraries Committee of Deptford Borough Council report having had under consideration the preliminary steps to be taken with a view to obtaining designs for the Central Library. The result of their deliberations is set out as follows:—(*a*) That advertisements be issued requesting architects practising in the City or County of London who are willing to submit designs for the Central Library to forward their names to the Town Clerk with particulars of any similar buildings which have been erected under their supervision; (*b*) that it be referred to the Public Libraries Committee to consider the replies received to the above advertisement, and to select the names of twelve of such architects, with a view to their submitting designs for the required building; (*c*) that an assessor be appointed to adjudicate on such designs when received at a fee of 50 guineas; (*d*) that the president of the Royal Institute of British Architects, for the time being, be asked to furnish the Council with the names of three architects of standing and qualified to judge the designs for the final selection by the Council of one of such architects to act as assessor; (*e*) that a premium of 50*l*. be awarded to the architect whose design may be placed first by the assessor, it being a condition that, in the event of such architect being appointed by the Council to carry out the work, the premium is to be merged in the remuneration to be paid him for his services.

Eccles Baths Extension.

The Baths Committee of the Eccles Town Council has received a letter from Mr. Ernest Woodhouse, one of the architects selected to submit plans for the baths extension competition, stating that, owing to pressure of business, he had found himself unable to submit designs. The Chairman of the Committee (Mr. Corner) and the Town Clerk have been instructed to make the necessary arrangements with regard to the marking and exhibiting of the competitive designs. Letters were received from two firms of quantity surveyors applying for the position of quantity surveyor. The consideration of the question of the appointment was deferred until the competition for architects is decided.

Secondary School, Havana.

The issue of the "Gaceta Oficial" of August 29 contains a notice inviting plans and specifications for the erection of a secondary school in Havana. As a credit of 300,000 pesos has been sanctioned for this purpose competitors must design a building not to exceed that cost. The building will consist of a ground floor and two upper stories. Plans and specifications will be received by the "Señor Secretario de Instrucción Pública y Bellas Artes," Havana, up to midday on October 22. Premiums of 4,000 pesos and 2,000 pesos respectively will be awarded for the best and second best plans submitted.

Institution for Blind and Deaf Children, Gorleston-on-Sea.

The President of the Royal Institute of British Architects has nominated Mr. Burke Downing, F.R.I.B.A., of Westminster, to act as assessor in the competition for the new Institution for Blind and Deaf Children to be erected at Gorleston-on-Sea. The competition is one limited to East Anglian architects.

COUNCIL OFFICES, GELLIGAER.—The ceremony of opening a new wing of the Gelligaer Urban District Council Office, Hengoed, was performed on the 26th ult. The architects were Mr. James P. Jones (Council Surveyor), and his assistant, Mr. T. R. Gabe. The cost of the building is about 1,200*l*.

PROJECTED NEW BUILDINGS IN THE PROVINCES.*

ALDERSHOT.—Additions, laundry, for the Aldershot Steam Laundry Company.

Atherton.—Warehouse at the Atherton Screw Bolt Works.

Barnsley.—Pavilion, Locke Park; Clerk to Town Council.

Belvedere. — Warehouse at test-room at works for Callender's Cable and Construction Company, Ltd.

Birmingham. — Offices, Sheelhouse-lane; Messrs. J. Barnsley & Son, builders, Ryland-street, Birmingham. School, Sladefield-road (1,000 places), special school for defective children, Bristol-street (150 places); Mr. J. A. Palmer, Secretary, Education Committee, Town Council. Children's hospital (50,000*l*.); Mr. F. Martin, Architect, care of Secretary, King Edward Memorial Fund Offices, Birmingham.

Blaydon. — Extensions, parish church (2,000*l*.); the Vicar.

Blyth (Northumberland).—Town hall and shops; Clerk to Council, Blyth.

Bridgnorth.—Two residences (4,000*l*.); Mr. B. Bradley, architect, Norwich Union-buildings, Birmingham.

Burnham (Somerset).—Lavatories, etc., at pavilion (1,100*l*.); Mr. J. W. Pople, builder, Burnham.

Cemmaes.—School; Mr. L. Phillips, Secretary, Education Committee, Montgomeryshire County Council, Newton.

Clifton.—Additions, mills, for Messrs. T. F. Firth & Sons.

Cornwood (Devon).—Congregational church (950*l*.); Pastor, Lutton Congregational Church, Cornwood.

Coventry.—Proposed three Carnegie libraries (10,000*l*.); Mr. J. E. Swindlehurst, Surveyor, Town Council. Factory for Rover Company; Mr. T. Griffith, architect, Hertford-street, Coventry; Mr. T. Garlick, builder, Coventry.

Craghead.—Church; Mr. W. Dyson, builder, Pelton.

Cwmgorse.—Congregational chapel (3,400*l*.); Mr. E. Beddoe Rees, architect, Cardiff; Mr. J. L. Hancock, builder, Cardiff.

Devizes. — Almshouses; Messrs. W. E. Chivers & Son, builders, Devizes.

Doncaster.—Artisans' dwellings, Marsh-gate (31,500*l*.); Mr. F. O. Kirby, Surveyor, Doncaster Town Council.

Driffield (Yorks). — Post-office buildings; Messrs. Thorpe & Turner, architects, Goole.

Durham.—School, Evenwood; Mr. W. Rushworth, Architect, Shire Hall, Durham.

Eastbourne.—Proposed convenience at Old Town; Borough Surveyor, Eastbourne Town Council. Convenience, Ocklynge Cemetery (485*l*.); Mr. J. Martin, builder, Commercial-road, Eastbourne. The Town Council has passed the following plans:—Addition, "Woodthorpe," Silverdale-road, and addition, Cholmeley House, Mr. F. G. Cooke, architect; addition, "Teneriffe," for Mr. F. S. Sword, Mr. P. D. Stonham, architect; internal alterations, Grand Hotel, for the Company, Mr. C. Breach, builder; four houses, Desmond-road, Mr. J. R. Jones, builder. Plans have been lodged for addition to "Holmwood," Milnthorpe-road, for Mr. G. H. Allen, Mr. W. Hay Murray, architect.

East Dereham.—School (4,545*l*.); Mr. H. J. Dereham, architect, 31, Castle Meadow, Norwich; Mr. J. Cracknell, builder, Huntley-grove, Peterborough.

Eccles.—Proposed structural alterations at St. Mark's schools, for the Managers. The Town Council has passed plans for alterations to works, New-lane, Winton, for Messrs. H. Cardwell & Sons, Ltd.

Farnworth.—School, Bentinck-street (3,400*l*.); Vicar, St. Thomas's, Farnworth.

Flamborough. — Proposed large hotel or hydro, for the North-Eastern Railway Company.

Glasgow. — Concert-hall (10,000*l*.); Messrs. M. Henderson, Ltd., Glasgow.

Golcar.—Warehouse, Sunny Bank Mills, for Messrs. C. & J. Hurst & Sons, Ltd.

Great Lumley. — School; Messrs. J. A. L. Robson and A. J. Dawson, Joint Secretaries, Education Committee, Durham County Council, Durham.

Huddersfield. — Extension, Primrose Hill Liberal Club premises (750*l*.); Mr. N. Colley, architect, 13, John William-street, Huddersfield.

Huntingdon. — Conversion of militia barracks into County offices, also construction of hall (3,000*l*.); Surveyor, Hants County Council.

Ipswich.—Mission hall; Messrs. Eade & Johns, architects, Tower-buildings, Ipswich.

Irlam.—Iron and steel works on banks of Manchester Ship Canal, for Pearson and Knowles Coal and Iron Company.

Kidderminster.—High school; Mr. J. P. Bridgwater, builder, Old Hill, Staffordshire.

Kirkham.—Two shelters for consumptives at workhouse; Mr. F. H. Brown, Clerk, Fylde Board of Guardians, Kirkham.

Lancaster.—School, High-street (2,000*l*.), and school, Dallas-road (18,000*l*.); Mr. W. French, Secretary, Education Committee, Lancaster County Council.

Lincoln.—Children's homes (1,300*l*.); Mr. T. Elms, builder, Gainsborough.

Linthwaite.—Factory, Beaufort Mills Estate, for Mr. J. E. Crowther, Bank Bottom Mills, Marsden.

Liverpool.—School, West Derby-street; Mr. J. Legge, Secretary, Education Committee, Liverpool Town Council.

Low Leighton (Yorks).—Wesleyan Methodist church, Hayfield-road; the Trustees.

Maesteg.—Offices for the Council (5,000*l*.); Mr. J. Humphreys, Surveyor, Maesteg Urban District Council.

Manchester. — Convalescent ward pavilion at Monsall Hospital (5,600*l*.); Mr. Price, Architect, Manchester City Council.

Mansfield. — Primitive Methodist Sunday-schools, Victoria-street; the Trustees. Proposed school, Princess-street; Mr. J. H. White, Secretary, Education Committee, Town Council.

Maryborough. — Infirmary sanatorium; Messrs. Kennan & Sons, builders, Fishamble-street, Dublin.

Middlesbrough. — Four-story drapery establishment, for Messrs. Newhouse & Co., Ltd., Middlesbrough.

Newport (Mon.).—Additions, Old Blackwood school; Mr. J. Charles, builder, Newport, Mon.

Northampton. — Congregational chapel, Abington-avenue; Trustees, Messrs. Sutton & Gregory, Nottingham; Messrs. Sharman & Son, builders, Northampton. The Town Council has passed the following plans:—Motor-house, Milton-street, for Mr. D. P. Taylor; addition, factory, Wood-street, for Messrs. Birdsall & Son; six houses, Southampton-road, for Mr J. Wareing; three houses, Ashburnham-road, for Mr. G. F. Sharman; additions, factory, Roe-road, for the Brook Manufacturing Company.

Nottingham.—Theatre; Mr. A. E. Kirk, 96, Victoria-street, S.W.

Oswestry. — Rebuilding St. David's Welsh church; the Pastor.

Panteg (Mon.). — School (5,500*l*.); Messrs. Turford & Southward, builders, Ludlow.

Pentrebach. — Houses (180*l*. per house); Architect, Merthyr Town Council.

Pontypridd. — Church hall; Messrs. A. L. Thomas & Morgan, architects, Church-street Pontypridd.

Portadown. — Factory, Meadow-lane, for Messrs. Spence, Bryson, & Co.

Porthenry (Carmarthen).—School; Mr. V. Morgan, architect, Spilman-street, Carmarthen.

Ruthin.—Infirmary at workhouse; Clerk, Board of Guardians.

Ryton.—Wesleyan church (1,000*l*.); Messrs. Joynson Bros., architects, Spring Head, Wednesbury; Messrs. Wilson Bros., builders, Bulkington.

Seaton.—School; Messrs. J. A. L. Robson and A. J. Dawson, Joint Secretaries, Education Committee, Durham County Council Durham.

Slough (Bucks).—Additions, British Orphan Asylum; the Managers.

Southampton.—College, Highfield; Sir G. Cooper, Vice-President, Hartley University College, Southampton. Extending and altering fish-market, French-street (912*l*.); Mr. John Nichol, builder. The Town Council has passed the following plans:—Ten houses, Foundry-lane, for Messrs. Weston & Burnett; six houses, Lumsden-avenue, for Messrs. Jurd, Sanders, & Christie; seven houses, Kenilworth-road, for Mr. F. W. Young; ten houses, Wilton-avenue, for Mr. W. B. Hill; two houses and shops, Manor Farm-road, three houses, Khartoum-road, and one house, Omdurman-road, for Mr. W. H. Masters; eleven houses, Wilton-road, for Mr. J. Smith; eight houses, Harborough-road, for Mr. F. Paull; mission-hall, Testwood-road, for Mr. P. T. Mead. Plans have been lodged for Mr. G. Denham, for four houses, Newton-road.

Stanley (Co. Durham).—Twelve houses; Mr. R. Southern, builder, Dipton.

Stockton Heath.—Police-station; Surveyor, Cheshire County Council, Chester.

Stowerbridge. — School; Mr. V. Rowe, architect, Foregate-street, Worcester.

Street.—Additions, factory, for Messrs. C. & J. Clark, Street.

Tolleshunt D'Arcy.—Six houses (1,200*l*.); Mr. E. J. Ennals, Surveyor, Maldon Rural District Council.

* See also our list of Competitions, Contracts, etc., on another page.

Troon. — Offices, Fullerton-street (2,000*l.*); Mr. D. Murdoch, architect, Troon.

Tunbridge Wells. — Court-house; Borough Surveyor.

Underhill (Dorset). — County school; Mr. Fletcher, Architect, Shire Hall, Durham.

Uxbridge.—The following plans have been lodged:—Twelve houses, St. Stephen's-road, and twelve houses, Burlington-gardens, Yiewsley, by Mr. S. H. Burdwood, for Mr. J. Risien; alterations, buildings, at asbestos works, Harefield, for Bell's Asbestos Company, Ltd.; factory and store, Springwell, Harefield, by Messrs. Swannell & Sly, for the Springwell Mineral Water Company.

Warrington.—The following plans have been passed:—Store houses, Napier and Sydney streets, for Messrs. Forshaw & Sons, Ltd.; house, and houses and shop, Cumberland and Oxford streets, for the Executors of Mr. M. Chappell.

Wem.—Primitive Methodist church; Shrewsbury District Commissioners, Primitive Methodist Connexion.

West Bromwich. — Schools (400 places); Managers, All Saints' School.

Weston-super-Mare. — Abattoirs; Mr. H. Nettleton, Surveyor, Weston-super-Mare Town Council.

Whitby. — Secondary school (11,000*l.*); Messrs. Allison Bros., builders, Middlesbrough.

Witney (Oxon).—Church house (1,100*l.*); Mr. J. Wooldridge, builder, Oxford.

York. — Alterations and improvements at workhouse (12,000*l.*); Mr. G. Sykes, Clerk, Board of Guardians, York.

LONDON COUNCILS.

Bermondsey.—Application is to be made to the Road Board for a grant of 5,000*l.* for improvements of the roads. Messrs. Gale, Gotch, & Leighton, 225, Long-lane, S.E., have had plans passed for a building in Decima-street.

Bethnal Green.—The new municipal buildings are to be formally opened on November 1.

Deptford.—The Borough Council has agreed to undertake, on behalf of the London County Council, to pave the footway in Evelyn-street, after widenings are carried out.

Finchley.—Attention was drawn at the last meeting of the Council to the fact that building work was already in progress in regard to a particular set of plans which had not yet been approved. The Chairman (Mr. Cope) said they had no power to stop a man building. He ran a great risk, however, in doing so in the circumstances mentioned, for if the plans did not conform to the by-laws the Council had the power to order the building to be pulled down. The following plans have been passed:—Mr. E. M. Gilbert Lodge, fourteen shops with dwellings over, Great North-road; Mr. E. Barley, electric theatre, Great North-road; Messrs. Frecker & Co., three houses, Holly Park; Alliance Estates Development Company, fifty-five houses, Woodgrange-avenue; Mr. C. F. Day, nine shops, Great North-road; Mr. A. Evans, six houses, Woodhouse-road; Mr. W. H. Lorden & Son, assembly hall, shops, flats, etc., junction of Regent's Park-road and Hendon-lane. Plans have been lodged as follows:—Mr. T. Richards, three shops with dwellings over, Great North-road, also ten houses, Cranley Gardens Estate; Alliance Estates and Development Company, Ltd., forty-eight houses, Woodgrange-avenue; Mr. J. Cooney, twenty-four houses, Woodberry-grove, North Finchley.

Fulham.—Plans prepared by the Borough Engineer have been passed for making up and paving portions of Napier-avenue and Ranelagh-gardens as new streets. Application is to be made to the Road Board for a contribution of 3,191*l.*, the extra cost of re-making carriageways on account of heavy motor traffic thereon. Plans have been passed, on the application of Mr. C. Botterrill, for an addition to the South Fulham Constitutional Club, New King's-road; also for Messrs. J. Reekie & Sons, 170, Church-street, Kensington, for the erection of a three-story addition at the rear of 56, Harwood-road.

Hendon.—The Rural District Council has passed the following plans:—Mr. J. Bissell, shop premises, Melrose-road, Pinner, for Messrs. Wilkins & Son; Mr. C. Musgrove, four houses, Southfield Park, Pinner.

Heston and Isleworth.—Mr. H. Harris has lodged a plan for three houses, Worton-road, Isleworth.

Hornsey.—Sewerage works, to cost 340*l.*, are to be put in hand. The following plans have been passed:—Messrs. Fedrick & Son (Cholmeley Park, Highgate), houses, North-hill, Highgate; Messrs. Dayborn & Co., alterations and additions at "Southwood Lodge," Southwood-lane, Highgate; Mr. E. H. Slatford (Elm-grove, Crouch End), additions at "Hazelwood," Stormont-road; Mr. J. T. Burr (North View-road, Hornsey), three buildings, St. James's-lane, Crouch End. The following have been lodged:—Mr. F. P. Ferguson (Chancery-lane, W.C.), four houses, Springcroft-avenue, Muswell Hill; The Estate Land, and Houses, Ltd. (Stroud Green), six warehouses, rear Turnpike-lane, North Harringay.

Kingston-on-Thames.—Messrs. Kavanagh & Co. are to make up a portion of Gloucester-road, from Coombe-road to Cambridge-road, the contract price being 3,087*l.*

Leyton.—Plans have been passed as follows:—Mr. A. C. Turner, nine houses, Pretoria-road, and two houses, Twickenham-road; Mr. R. Hodsdon, adaptation of hall into cinematograph hall, Cann Hall-road; Mr. W. H. Cockcroft, four houses, Colchester-road; Mr. A. C. Matthews, extension to mission hall, Newcomen-road. Plans have been lodged by Mr. W. A. Hutchin for nine houses and two shops, Hainault-road.

Marylebone.—1,000*l.* is to be spent in feeder alterations in preparation for the winter load.

Poplar.—The following plans have been passed:—Messrs. Harris & Wardrop, addition, Messrs. Waterlow & Sons' factory, Smeed-road; Messrs. Heazell & Sons, new vicarage for All Hallows' Church, Dunkeld-street; Messrs. Andrews & Peascod, parochial buildings at north end of Avenue-road; Messrs. Turnbull & Son, factory addition at Fairfield Wharf, Gale-street; Messrs. Clarke, Nicholls, & Coombs, factory building, south side of Carpenter's-road; Mr. Edwin Evans, six houses, Ridgdale-street.

Shoreditch.—The paving works at Holywell-lane, and Paul and Wilson streets, have been completed at a cost of 4,523*l.* The original estimate was 4,525*l.*

Southgate.—Plans have been passed as follows:—Mr. W. Simmons, seventeen houses, Belsize-avenue, Bowes Park; Mr. A. C. Turner, thirty-eight houses, Kelvin-avenue, Bowes Park; Mr. L. Chiappa, alterations, high school, Green-lanes, Palmer's Green; Mr. C. W. Tout, four houses, Bourne Hill, and one in Burford-gardens, Palmer's-green; Mr. W. A. Goring, thirteen houses, The Mall, Selborne-road and Oakfield-road.

Southwark. — A new road, between New-street and Alberta-street, is to be roughly formed at an estimated cost of 150*l.*, and a sewer is to be constructed at an estimated cost of 210*l.*

Stepney.—Sewer works are to be carried out in Mulberry-street, Mile End, at a cost of 170*l.*

Wandsworth.—The following plans have been passed:—Mr. G. F. Jones, twelve houses, Gatton-road, Balham; Mr. J. Watt, two shops, East-hill, Fairfield; Messrs. W. Lawrence & Son, dairy and shop, Valley-road, Streatham; Messrs. Chown & Sheffield, three shops and two houses with shops, Streatham High-road, Streatham.

Willesden. — Messrs. Meakin, Archer, & Stoneham have had plans passed for the erection of motor repair works in Edgware-road, Cricklewood, for Messrs. Warwick, Wright, & Co. Plans have been lodged as follows:—Mr. A. E. King, factory on the Church End House Estate, Willesden, for Messrs. J. H. Dalmeyer, Ltd.; Mr. L. Moss, additions and alterations, building in Dyne-road, to be known as the Moorish Picture Palace, for Mr. Hy. Hands; Mr. Alex. Ritchie, eighteen houses, Melrose-avenue.

Wimbledon.—The Borough Surveyor submitted plans to the Baths Committee showing that an additional swimming-bath, 75 ft. long 28 ft. wide, could be placed on vacant ground adjoining the baths, and belonging to the Council, at a cost of about 3,000*l.* He was directed to prepare plans for, and an estimate of, the cost of providing the following accommodation:—(*a*) Swimming-bath, 75 ft. long by 28 ft. wide, with dressing-boxes and the usual offices, a room for club meetings, two storerooms, superintendent's office, and tank-room; (*b*) forty spray baths; and (*c*) twenty ladies' slipper-baths. Mr. H. E. Richards, architect for the Wimbledon Hippodrome, Ltd. (a company formed to take over the lease of Worple Hall), wrote to the Council enclosing sketch plans of proposed additions to the shops in front of the hall. The Mayor and some of the councillors are to meet Mr. Richards' clients and discuss the question of the Corporation purchasing the four shops with the object of widening the road. The following plans have been approved:—Messrs. Ryan & Penfold, fifteen shops and houses, Arthur-road; Mr. H. D. Searles Wood, motor garage, Dryden House, Parkside; Messrs. T. W. Palmer & Co., motor garage, Russell road; Mr. H. E. Richards, alterations and additions, skating-rink, Worple-road.

Woolwich.—Application is to be made to the Road Board for a grant to cover the cost of reforming the main highway from Lee Green to Sidcup. The cost is approximately 13,000*l.* The footway in Burrage-road is to be relaid at an estimated cost of 365*l.* The Borough Engineer has been instructed to commence the Benares-road redrainage scheme as soon as he has information that the London County Council are to grant a loan to cover the cost thereof. The following plans have been passed:—Mr. W. Harris, Steam Joinery Works, North Woolwich, seven houses, Silverland-street, North Woolwich; Mr. J. J. Bassett, 121, Earlshall-road, Eltham, six houses, Dumbreck-road, Eltham, and sixteen houses, Dunvegan-road, Eltham; Mr. J. B. Beale, 5, Footscray-road, New Eltham, six houses, Enslin-road, Eltham.

APPOINTMENT.

LYNN.

The Lynn Town Council have appointed as their Borough Surveyor, in succession to Mr. J. H. Webb, who vacates the position at the end of the year, Mr. A. J. Smith, Engineer and Surveyor to the Caversham Urban District Council. There were 206 applicants for the post.

GENERAL BUILDING NEWS.

CHURCH, ABERDEEN.

Plans of the new church for John Knox Parish congregation, Aberdeen, have been approved. The church is to be erected on the site occupied by the present buildings in Mounthooly. Under the church, and extending the whole length of the building, except to that part in the rear where the private rooms are, will be a hall, with seating accommodation for 700 people. Messrs. Wilsons & Walker, Aberdeen, are architects for the building.

CHURCH TOWER, CAERPHILLY.

The foundation-stone of the new tower of St. Martin's Church, Caerphilly, was laid recently. The contractors are Messrs. E. Turner & Sons, Cardiff, and the architect Mr. G. E. Halliday, F.R.I.B.A., of Cardiff and Llandaff.

CHRIST CHURCH VICARAGE, CAMBERWELL.

The foundation-stone has just been laid of a new vicarage on the site of the old National schools, Asylum-road, Old Kent-road, S.E. The architect is Mr. F. E. Halford; Mr. J. H. Duley, foreman of works to Messrs. J. & M. Patrick, builders and contractors, of Wandsworth. The front part of the old National schools has been pulled down, and erected further back to make room for the new vicarage. The contract amount for erecting the vicarage was 1,340*l.*, and for new classrooms to school and alterations to same 430*l.* The vicarage is being faced with Bracknell red facing bricks up to first floor, and the upper parts faced in rough cast and with Portland stone dressings; the whole to be roofed with Delabole slates.

TOWER, COLWYN BAY CHURCH.

The foundation-stone of the tower of St. Paul's Church, Colwyn Bay, has just been laid. Designed by Mr. J. Douglas, of Chester, the tower will be 85 ft. in height, with eight belfry windows.

SCHOOL BUILDINGS, BALLATER.

A new block of buildings is at present being added to Ballater Public School for the purpose of providing proper accommodation for the teaching of the supplementary course. The building will consist of two departments, one for cooking and laundry work for the girls, and the other for woodwork for the boys. Messrs. Jenkins & Marr, Aberdeen, are architects, and the various contractors are:—Mason, Mr. Charles Ferries, Ballater; carpenters, Messrs. Duguid & Sons, Ballater; slater, Mr. William Grant, Ballater; plumber, Mr. Walter Simpson, Aberdeen and Ballater; plasterer, Mr. George Mitchell, Ballater; painters, Messrs. Gordon & Watt, Aberdeen.

SCHOOL, RUSTHALL.

A new elementary school has been erected for girls at Rusthall. The building has been designed by Mr. E. Cronk, architect, the work having been carried out by Messrs. Beale & Sons, of Tunbridge Wells.

SCHOOL, LARKHALL, GLASGOW.

A new school has been erected by the Larkhall School Board on a site in Claude-street, Larkhall. On the ground floor there are nine classrooms, capable of holding sixty pupils each, headmaster's room, two full cloakrooms, etc. On the upper floor there are

eight classrooms for thirty scholars each, with folding sliding partitions which can throw two classrooms into one. There are also art-rooms, science-room, laboratory, and mechanical drawing-room, and two cloakrooms. A gallery round the central hall gives access to the various classrooms. The total cost is estimated at 12,000*l*. The building has been constructed from plans prepared by Messrs. J. B. Wilson & Son, Glasgow.

MUSIC-HALL, BRIDGETON, GLASGOW.

It is expected that the work of erecting a new music-hall, to be called the Olympia Theatre, will shortly be commenced. A site has been secured at Bridgeton Cross. Messrs. George Arthur & Sons are the architects.

NEW BUILDINGS IN SOUTH LONDON.

Besides Christ Church Parsonage, there are several new buildings now in course of erection in this locality. At New Cross, the London and South-Western Banking Company are re-erecting a new branch bank; and in Queen's-road, New Cross, the tender of Mr. A. J. Ware, builder, of Plumstead, has been accepted for 5,573*l*. for the erection of new premises for the Hatcham Liberal Club. Close by there is in course of erection the new Public Library for Deptford, the result of a recent architectural competition. At the North Camberwell Conservative Club, 432, Old Kent-road, a new wing is in course of erection, 70 ft. by 30 ft., from plans prepared by Mr. W. F. Potter. The following tenders were received for this work:—Mr. W. Garner, Old Kent-road, 350*l*.; Mr. W. Harborough, South Bermondsey, 345*l*.; and Mr. Cunningham, Bristol, 320*l*. (accepted), and who is carrying out the work.

HALL, KELTY, SCOTLAND.

Centrally situated in Oakfield, Kelty, a hall has been built by the Kelty Public-House Society out of profits earned in two public-houses. The hall, which was erected from the design of Messrs. Andrew Scobie & Son, architects, Dunfermline, has been built at a cost of 4,500*l*., and is capable of accommodating 1,200 persons.

INSTITUTE FOR DEAF AND DUMB, ABERDEEN.

New buildings have been erected in Rose-street, Aberdeen, for the Aberdeen Deaf and Dumb Benevolent Society. Mr. G. Bennett Mitchell was the architect. Built of granite, with Roman façade, the building faces Rose-street. The contractors are:—Mason work, Mr. Alexander Anderson, Bieldside; plumbing and heating work, Messrs. Blaikie & Sons, Union-street; joiner work, Mr. William Dawson, Huntly-street; electric lighting, Mr. J. F. Anderson, Bridge-street; painter work, Messrs. Alexander Aitken & Sons, Union-street; and slater work, Mr. Harper, Summerfield-terrace.

BATHS, FORFAR.

New public baths have been erected at Forfar in the Vennel. Plans were prepared by Mr. H. J. Blanc, Edinburgh, and early in June last year the contracts for the work were fixed as follows:—Mason work, Mr. A. M. Adamson, Forfar; joiner work, Mr. James Farquharson, Forfar; plumber and engineer work, Messrs. William Milne & Sons, Forfar; slater work, Messrs. A. & C. Shepherd, Forfar; iron work, Messrs. G. H. Nicoll & Co., Dundee; plaster work, Messrs. Troup Brothers, Forfar; painter work, Messrs. Thomas Barclay & Son, Forfar.

CHILDREN'S HOSPITAL BUILDINGS, BIRMINGHAM.

According to the *Birmingham Post*, some revisions have been made in the architect's plans for the new children's hospital, particularly in respect to provision for open-air treatment. The hospital as now designed by Mr. F. Martin, and approved by the committee, will have over 130 beds. The hospital portion proper will consist of four accident wards, containing sixteen beds each in two-story buildings, and five surgical wards, with accommodation for fourteen beds, all capable of being worked on the open-air system. The roofs of these blocks will be flat, and capable of taking a large number of beds, while at a slight additional expense they can be converted into full ward units. Whilst the wards generally have been planned to meet the requirements of open-air treatment, each will contain a circular recess with a fireplace, round which beds can be grouped when necessary. Provision has, moreover, been made for those patients who may require enclosed or heated rooms. In connexion with the surgical wards there will be two operating theatres and rooms for X-ray examinations. The septic block will contain, on the ground floor, a diphtheria ward for six beds, with a tracheotomy room, and on the first floor will be two wards, of three beds each, for other infectious cases, approached by separate outside staircases. The home for the nurses in this section will contain accommodation for nurses and ward maids attending the diphtheria wards, and also for those in attendance on the other infectious cases, all having a separate outside approach.

TRADE NEWS.

We are informed that Mr. Edmond Coignet has been awarded a "Grand Prix," Class 28, at the Brussels Exhibition, 1910, for his system of reinforced concrete.

The Dockhead Roman Catholic school at Arnold-place, Bermondsey, is being warmed and ventilated by means of D. O. Boyd's "Hygiastic" ventilating school stoves, made by Messrs. O'Brien, Thomas, & Co., Upper Thames-street, London, E.C., and Excelsior Works, Rollins-street, Old Kent-road, S.E. The firm are also supplying these stoves to the Lathom-road school, East Ham.

The new Isolation Hospital, East Molesey, is being supplied with Shorland's warm air ventilating patent Manchester grates and ventilators by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

Messrs. E. A. Roome & Co., builders, of 36, Basinghall-street, E.C., and Urswick-road, Homerton, N.E., have secured the contract for the erection of additions to the Monastery of St. Antony, Khedive-road, Upton Park, Essex, under the supervision of Messrs. Pugin & Pugin, architects, of Liverpool.

SANITARY AND ENGINEERING NEWS.

ANSTRUTHER HARBOUR.

Mr. Henderson, C.E., Edinburgh, has prepared a report and plan of the extension of Anstruther Harbour to permit the Harbour Commissioners to make an application for a grant from the Development Commissioners. The estimated cost of the improvements is 30,163*l*., and the works include the deepening of the inner and outer harbours; the widening of the west pier to make it more suitable for traffic; and the construction of a breakwater of concrete blocks to protect the east pier.

SEWAGE WORKS FOR YORK.

The York City Council is being asked to apply to the Local Government Board for sanction to borrow 57,637*l*. for additional sewage works for the city. It is proposed to extend the bacteriological system of treatment of sewage at Naburn, by more septic tanks and filters, to acquire additional land and pumping plant, to build stand-by tanks to deal with excess flow of sewage, in place of storm-water filters, and a humus pit for the removal of suspended solids from the filtrate. These works are designed by Mr. F. W. Spurr, the Engineer, to meet the requirements of the Local Government Board and the West Riding Rivers Board. It is proposed that the new apparatus shall be driven electrically.—*Yorkshire Post.*

SEWAGE WORKS, WAKEFIELD.

The members of the Wakefield Corporation and others attended at the sewage disposal works in Calder Vale, on the 28th ult., to witness the laying of a stone in commemoration of the extension and remodelling of the works. About ten years ago the works were erected at a cost of over 87,000*l*., but they are now proving inadequate, and after investigation it was decided to erect new filters and other appliances for the more up-to-date treatment of sewage. The additional improvements will cost over 25,000*l*. Mr. Ben Firth, of Harrogate, undertook the contract. The City Surveyor is Mr. J. P. Wakeford.

BOOKS RECEIVED.

ROYAL COMMISSION ON HISTORICAL MONUMENTS (ENGLAND): AN INVENTORY OF THE HISTORICAL MONUMENTS IN HERTFORDSHIRE. Pp. 311. (11s. 6d.)

ANNUAL OF THE BRITISH SCHOOL AT ATHENS. No. XV., Session 1908-09. Pp. 412, plates 20. (Macmillan & Co., Ltd. 25s. net.)

A GLOSSARY OF BUILDING CONSTRUCTION. By Charles H. Gregory. Pp. 136. (J. Haslam & Co., Ltd. 3s. 6d. net.)

MUNICIPAL ENGINEERING: MODEL ANSWERS TO QUESTIONS RECENTLY SET AT RECENT EXAMINATIONS OF THE INSTITUTION OF MUNICIPAL AND COUNTY ENGINEERS. Second Edition. Revised by Sydney S. Turner, A.M.Inst.C.E., Barrister-at-Law. Pp. 199. (St. Bride's Press, Ltd. 3s. 6d. net.)

STUDENT'S CATECHISM ON BOOK-KEEPING. By F. Davey. Pp. 457. (Butterworth & Co. 3s. 6d.)

TRADE CATALOGUES.

The Automatic Tap Syndicate, Ltd., of 11, Queen Victoria-street, London, send us particulars of their "Acme" tap (Riggs's Patents), designed to obviate the "water-hammer" caused by water drawn under pressure with the ordinary plug tap and screw-down valve. In the larger sizes the tap is suitable for such uses as that of a landing valve for fire-hose, etc. An annular passage surrounding the plug permits of two diamond-shaped parts gradually and simultaneously opening and closing parts of corresponding form in the body of the tap. The admission of water to the top of the plug counteracts any disposition to rise. The Automatic Tap Syndicate offer to send a sample ½-in. gun-metal "draw-off" tap on receipt of a postal order for 5s. to prove the merits of the "Acme" tap.

Messrs. Rownson, Drew, & Clydesdale, of 225, Upper Thames-street, London, E.C., send us their general catalogue for the current year, including ironmongery, stoves and ranges, and constructional and general wrought-iron work. The catalogue is of a handy size for desk or pocket use.

We have received from the Carron Company their supplementary architectural catalogue, containing prices and particulars of their well-known ornamental castings for porches, verandahs, crestings, drip-friezes, gates, railings, etc.

The London Concrete Machinery Company, of London, Ontario, Canada, send us their catalogue of concrete mixers, block machines, etc. Their London adjustable block machine is constructed to make any size of block on one size pallet, and is suited to an aggregate of any degree of coarseness. The machine is moderate in cost, and should find a sale in this country. The same firm also manufacture "architectural" moulds, such as columns, ornamental vases, etc.

The Trussed Concrete Steel Company, of Caxton House, Westminster, call our attention to their Truss-Con waterproofing paste for waterproofing concrete standpipes, cisterns, reservoirs, and concrete structures generally. It is claimed that the addition of the Truss-Con paste to cement mortar forms an absolutely waterproof coat.

The Empire Gas Generator Company, of Newcastle-on-Tyne, call our attention to the Empire gas generator for power and lighting combined. It is claimed that the action is automatic, that there is no danger of explosion, and that a pure white light is produced free from fumes and dirt. Gas generated by this plant can be adapted both for lighting and power at an exceedingly moderate cost. The plant should prove especially suitable for isolated villages or country places. It can be driven either by a hot-air engine, which can be supplied with the plant, or by water, if available, with a 30-lb. pressure.

Messrs. Siemens Brothers send us their catalogue of electrical supplies (Price List II.). We need not call attention here to the well-known merits of the "Tantalum" lamp supplied by Messrs. Siemens. This firm are also the manufacturers of the "O.S." wiring system, designed to meet all the requirements of modern wiring in regard to elasticity of application, inexpensiveness of material and erection, and perfect electrical continuity. Messrs. Siemens also supply every form of electric-light fitting both for external and internal use.

The Yale and Towne Company, of 6, City-road, London, E.C., send us leaflets descriptive of the Yale and Towne Blount door-check. This is an improvement on the already well-known Blount check, forming a combined door-check and holder, which will hold the door open at any required angle. From the same firm emanates the Yale double-acting door-check, an adaptation of the Blount check to suit double-acting doors, which should prove greatly superior to the ordinary double-acting spring-hinge.

We have received from Messrs. J. H. Sankey & Son, Ltd., of Essex Wharf, London, E., price lists of their terra-cotta fixing bricks, partition blocks, and ceiling tiles. These latter can be nailed on to existing joists, thus rendering an old building fireproof at small expense and to the satisfaction of fire insurance companies. Messrs.

Sankey also manufacture the "Pyruma" fire cement for setting firebrick work in kilns, furnaces, ovens, flues, etc.

The General Electric Company, of Queen Victoria-street, London, E.C., send us price-lists of their "Witton" switches for 600 volts. The same firm are also the makers of the "Butt" arc lamp, which they claim to be the simplest and at the same time the most robust arc lamp on the market.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.

The British Stone and Marble Company, Ltd., notify that they have taken new offices at Craven House, Kingsway, London, W.C., and that their sales department, both for building stone and ferro-stone glazing, will be conducted solely at this address.——Mr. T. W. Vaughan (Messrs. T. W. Vaughan & Co., electric lighting, heating, and ventilating engineer) informs us that he is no longer associated with, and has no interest in, the Vaughan Engineering Installations, Ltd., of Goswell-road, of which company he was a director under Article 83 of the Company's Articles, and that he has taken offices and showrooms at Cross-street, Islington, and works at rear in Fowler-road, Islington, and entered into partnership with Mr. W. G. Smail, with whom he will carry on business under the name of T. W. Vaughan & Co.

THE HOUSE AND COTTAGE EXHIBITION OF 1911.

The list of vice-presidents of this exhibition to be held at Squirrel's Heath next year, where the Great Eastern Railway are opening a new main line station next month, shows the interest which has been aroused, and the influential support which has been secured. Among those who will support the President of the Local Government Board are Lord Claud Hamilton (Chairman of the Great Eastern Railway Company), Lord Rayleigh, Alderman Thompson (Chairman of the National Town Planning and Housing Council), The Garden Cities and Town Planning Association (of which the Hon. Sir Ralph Neville is President), Mr. Leonard Stokes (President of the Royal Institute of British Architects), Mr. Arthur Keen (President of the Architectural Association), and Mr. Andrew Johnson (Chairman of the Essex County Council).

THE ROMFORD GARDEN SUBURB.

The directors of the new Garden Suburb at Gidea Park are taking active steps to obtain a type of house in the suburb which will mark a definite advance in suburban architecture. In addition to the houses which are being designed for next year's exhibition, a considerable number of houses—and some shops—are now being designed for the Estate by architects, among whom are:—Messrs. Charles Spooner, F.R.I.B.A., Edgar Wood, A.R.I.B.A., E. Turner Powell, F.R.I.B.A., Edward J. May, F.R.I.B.A., C. E. Mallows, F.R.I.B.A., M. H. Baillie Scott, Geoffrey Lucas, A.R.I.B.A., and W. Curtis Green, A.R.I.B.A.

CONGRESS OF PUBLIC ART, BRUSSELS.

The fourth meeting of the "Congrès International d'Art Public" will take place in Brussels on October 8-12, under the presidency of M. Beernaert, with M. Eugène Broerman (of 56, Avenue Des Lambeaux, Brussels), as general secretary. The Congress will devote its attention to (*a*) the preservation of sites and monuments of art—including buildings, towns, sculpture, paintings, etc.; (*b*) town planning, construction, and decoration; and (*c*) education in the principles and technicalities of art. A committee has been formed in Brussels for the promotion of these and kindred objects.

HISTORICAL MONUMENTS AT DUNDEE.

Dr. Thomas Ross, architect, and Mr. W. T. Oldrieve, Principal Architect, H.M. Board of Works, visited Dundee on Saturday as deputies from the Royal Commission on Historical Monuments with a view to ascertaining the stability of the Old Steeple to carry a crown. The proposal to place a crown on the Old Steeple has excited a good deal of interest, and the Town Council invited the Commission to make a report on the matter.

UNIVERSITY OF LONDON LECTURES IN REINFORCED CONCRETE.

A course of five lectures on reinforced concrete will be given at the Institution of Civil Engineers, Great George-street, Westminster, S.W., by Mr. W. Dunn, at 5.45 p.m., on Fridays, November 4, 11, 18, 25, and Wednesday, November 30, 1910. In addition to the lectures, a demonstration will be given at University College, showing the manner of failure of reinforced concrete columns and beams in the testing machines. The lectures are addressed to advanced students of the University and others interested in the subject dealt with. Admission will be by ticket, obtainable on application to Mr. P. J. Hartog, Academic Registrar.

BRICKMAKING DEVELOPMENTS AT NEWARK.

According to the *Clayworker*, new stiff-plastic brickmaking machinery has recently been installed at the Lowfield Brickworks of the Vale of Belvoir and Newark Plaster Company, at Newark. The machinery has been supplied and fixed by Messrs. Bradley & Craven, Ltd., of Wakefield. The bricks are taken direct from the press to a Belgian kiln of twenty-two chambers. The Vale of Belvoir Company has had the whole plant laid out on modern lines for economy in cost of production, consistent with the manufacture of bricks of the best quality. The motive power is supplied by one of Messrs. Marshall's under-type compound engines, with feed-water heater, etc. A siding from the Great Northern Railway runs alongside the kiln. The pump works of Messrs. Simpson & Co., Ltd., which adjoin these brickworks, are being extended, and there is an increasing demand for houses for their employees.

UNIVERSITY EXTENSION LECTURES.

Mr. Banister Fletcher, F.R.I.B.A., commenced a course of twenty-four University Extension Lectures on "Ancient Architecture" at the British Museum (by permission of the Trustees), on Tuesday, October 4, at 4.30 p.m. Also a course of twenty-four lectures on "Mediæval Architecture," at the Victoria and Albert Museum (by permission of the Board of Education), on Monday, October 3, at 5 p.m. These courses are to be illustrated by lantern slides, photographs, diagrams, and models, and will appeal not only to architects, but to art students, the general public, and those who travel. The objects in the museums will be explained in the classes held after the lectures. Full particulars from Miss Gaudet, 120, Cheyne-walk, Chelsea, S.W.

NEWARK GIRLS' HIGH SCHOOL.

The new buildings of the Newark Girls' High School (Lilley and Stones Charity) were opened on the 23rd ult. The new school has cost 5,000*l*., and is built from designs by Messrs. Brewill & Baily, architects, Nottingham; Messrs. G. Brown & Sons, Newark, being the contractors.

NEW TECHNICAL SCHOOL, SMETHWICK.

The new technical schools in Crocketts-lane, Smethwick, were publicly opened recently. Mr. F. J. Gill was the architect. The building, including the furnishing and equipment, have cost 21,000*l*.

AFFORESTATION IN NEW ZEALAND.

In common with other timber-producing countries, New Zealand is taking active measures to provide against the depletion of her forest resources by the rapid development of the sawmill industry. Very large numbers of trees have been planted, and in one district alone some twenty-four million saplings have been planted by State prisoners under expert supervision.

LAMP STANDARD FOR ST. JAMES'S PARK.

The President and Council of the Royal Academy have presented to the Office of Works a lamp-standard designed by Mr. S. N. Babb, for erection near the proposed Lord Clive memorial statue in St. James's Park. The design was chosen in a competition instituted under terms of the Lord Leighton Trust Fund.

SIR HENRY IRVING MEMORIAL, LONDON.

The statue of Sir Henry Irving, erected exclusively by his fellow-actors, has been cast in bronze by the sculptor, Mr. Thomas Brock, R.A., and will shortly be set up on the site which is now being prepared for it, near Charing Cross-road, on the wide pavement along the north side of the National Portrait Gallery. The statue represents Sir Henry Irving wearing his academical robes.

CAPITAL AND LABOUR.

LOCK-OUT IN PARIS BUILDING TRADE.

A dispute, we read, has broken out in the Paris building trade. In September of last year the Syndical Chamber of Masonry Contractors signed a collective labour contract with the Mason's Syndicate which was to be binding until the end of the present year. The masters, who did not agree to the men's demands until the architects had been called in to arbitrate, finally yielded, and consented to raise the pay of certain categories one penny and three-halfpence per hour. After a few months, both contractors and architects were bitterly complaining that the work was neglected. Up to January, the workmen had made no complaints on their side, but in that month they declared that certain contractors were not observing the clauses of the collective labour contract. The Syndical Chamber requested the men's syndicate to formulate charges and cite the delinquents. The men's syndicate only followed this suggestion in one case, and in this case the contractor was sentenced by the Courts last March for infringing certain clauses of the contract. The upshot of the matter has been that, instead of loyally respecting the collective labour contract until it expires at the end of the year, the men's syndicate officially tears the convention to shreds, and declares that the men shall only work nine hours a day, instead of ten, as hitherto. Many masters have retorted by closing their yards.

PATENTS.

APPLICATIONS PUBLISHED.*

20,217 of 1909.—Walter Drexler: Manufacture of hollow concrete blocks, floors, and ceilings.

20,394 of 1909.—Edward Charles Robert Marks (Green): Variable diameter brace-bits for boring wood.

20,458 of 1909.—Walter Perry Notcutt: Abrasive files.

21,031 of 1909.—Adalbert Hermann: Manufacture of artificial stone slabs or plates.

21,205 of 1909.—Percy Lyttelton Liney: Means for pulling up or raising floorboards.

21,251 or 1909.—Charles Smith: Machines for manufacturing wire, or like bonds, used in ferro-concrete constructions.

21,598 of 1909.—Thomas Whittaker and C. Whittaker & Co., Ltd.: Brick-making machines.

22,750 of 1909.—John McNaught: Combined sliding bolt and lock fastenings.

22,865 of 1909.—George Willshire Johns: Windows with double-hung sashes.

22,970 of 1909.—George Cook: Method of glazing greenhouses, garden lights, and frames, portable buildings, and the like.

23,028 of 1909.—Edward Walton Morrish: Fittings for venetian blinds.

24,219 of 1909.—J. Stone & Co., Ltd., George English Jakeman, and Arthur Wells: Manholes, surface boxes, and covers therefor.

25,178 of 1909.—Alfred King: Cowl for chimneys and the like.

25,595 of 1909.—John Buckley: Curtain-pole holder.

25,700 of 1909.—Joseph Lockwood: Domestic fireplaces.

27,697 of 1909.—Eli Ernest Taylor: Portable buildings and other structures.

28,442 of 1909.—William Newman & Sons, Ltd., and George Frederick Newman: Double-acting door-hinges.

28,708 of 1909.—The Metal Jointing Company, Ltd., and Thomas Harden: Means for enabling a branch to be cast upon a lead or similar pipe *in situ*.

30,259 of 1909.—Henry Stephenson and Charles Duerden: Kilns for burning bricks and tiles.

47 of 1910.—Charles Coventry (Doherty): Apparatus for burning cement.

271 of 1910.—James Herbert Bennett: Method of renovating or repairing staircases, steps, and the like.

1,196 of 1910.—William Dyce Cay: Forming a metal pile shoe for reinforced piles or sheet piles of concrete.

2,176 of 1910.—Arthur James Lord: Sliding and folding partitions.

2,421 of 1910.—Hermann Paul: Presses for corrugating roofing paper, felt, and like materials.

4,441 of 1910.—Thomas Balfour: Fastenings for doors.

5,124 of 1910.—Isaac Newton: Wood or metal sills for windows, specially applicable to casement windows.

5,190 of 1910.—Oscar Henry Weckesser: Mixing-machines for concrete plaster and the like.

5,935 of 1910.—Reginald Haddan (C. M. B. Wrench Company): Ratchet wrenches.

6,252 of 1910.—William Kenworthy Lord: Chimney-pot.

8,287 of 1910.—John Albert Beckert: Means for adjustably supporting window blinds.

11,945 of 1910.—Paul Hopf: File handles.

14,556 of 1910.—George Henry Trow and Trow's Patents, Ltd.: Hinges for doors, casement windows, and other hinged structures.

* All these applications are in the stage in which opposition to the grant of a patent upon them can be made.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competition, iv.; Contracts, iv. vi. viii. x.; Public Appointment, xix; Auction Sales, xxvi.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.**

Competitions.

* OCTOBER 31.—**Romford.**—TOWN PLANNING, ETC.—The Town Planning and Modern House and Cottage Exhibition invite designs for a detached house, a detached cottage, and the internal fittings of a cottage, to be erected at Gidea Park, Squirrels Heath, Romford. For further particulars see advertisement in our issue of September 17, and of to-day's date.

NOVEMBER 15. — **Ruislip-Northwood.** — TOWN PLANNING.—The Directors of Garden Estates, Ltd., invite designs for a town plan of estates of King's College, Cambridge, situated in the urban district of Ruislip and Northwood, Middlesex. Conditions and maps may now be obtained from Mr. Graham Kennedy, Secretary, Garden Estates, Ltd., 33, Henrietta-street, Strand. Deposit 1*l.* 1*s.* See advertisement in our issue of August 27.

NOVEMBER 29.—**Bangor, Co. Down.**—SEA-WATER BATHS.—The Bangor U.D.C. invite designs for baths to be built on the foreshore in conjunction with the existing sea-water pond at Pickie, at a cost of 7,050*l.* Premium 50*l.*, or to be merged into commission of 5 per cent. For further particulars apply to Mr. J. Milliken, Clerk to the Council, and see advertisement in issue of August 20.

* NOVEMBER 30.—**Romford.**—The Town Planning and Modern House and Cottage Exhibition invite designs for gardens to houses and cottage, also perspective drawings suitable for reproduction. For further particulars see advertisement in our issue of September 17, and of to-day's date.

DECEMBER 1. — **Bournemouth.** — REBUILDING PREMISES.—Competitive designs are invited from architects for rebuilding premises for Mr. J. E. Beale. Three premiums (100*l.* 50*l.*, and 25*l.*) are offered. For further particulars see advertisement in our issue of September 17.

DECEMBER 1.—**Dublin.**—New pavilion to the Royal Hospital for Incurables at Donnybrook. Open only to architects practising in Dublin. Premia 100*l.* (to be merged), 30*l.*, and 20*l.* Conditions on application to the Registrar.

DECEMBER 1.—**Manchester.**—LAYING-OUT ESTATE.—The Manchester Corporation invite designs for laying-out their Blackley Estate. Three premiums are offered, viz., 150*l.*, 100*l.*, and 50*l.* See our issue of September 3, page 264, for further particulars.

* MARCH 31, 1911.—**Romford.**—The Town Planning and Modern House and Cottage Exhibition invite designs for the general plan of Gidea Park, Squirrels Heath, Romford. For further particulars see advertisement in our issue of September 17, and of to-day's date.

NOVEMBER 1, 1911.—**City of St. Petersburg.**—MONUMENT TO ALEXANDER II.—Particulars in our issue of August 13, 1910.

* NO DATE.—**Armagh.**—CHURCH HOUSE AND HALL.—The Committee of the Armagh Diocesan Church House and Synod Hall invite correspondence from architects with a view to the preparation of plans. See advertisement in this issue for further particulars.

NO DATE.—**Llandudno.**—CHURCH.—Open to architects who have been in practice five years in North Wales and Chester. Conditions (1*l.* 1*s.* deposit, returnable if conditions are sent back in fourteen days) from the Rector, Llandudno. For further particulars see advertisement in our issue of September 3.

NO DATE. — **Trondhjem, Norway.** — PROPOSED HARBOUR AND RAILWAY EXTENSION.—Competitive designs for above are invited by the Joint Committee of the State Railways and the City Harbour Commissioners. Programmes may be obtained free, and full description and plans at a charge of 4*l.* 4*s.* per set (which amount will be returned in full to each bona fide competitor), on application to the undersigned, the Consulting Engineer to the City, Mr. L. S. Zachariasen, M.Inst.C.E., 12, Daylesford-avenue, Putney, London, S.W.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

OCTOBER 8.—**Ilkley.**—NEW WING.—For the various works (except painter) required in the erection of a new wing to Arundel Lodge, for Mr. A. B. McCreery. Quantities on application to Mr. A. G. Adkin, architect, Bank-street-chambers, Bradford, not later than the 8th inst.

OCTOBER 9-16.—**Tredegar.**—LAUNDRY AND STABLES.—The erection of laundry and stables for the Tredegar and District Laundry Company, Ltd. Plans, etc., may be seen at the office of the architect, Mr. A. F. Webb, High-street, Blackwood, where quantities may also be obtained upon payment of 1*l.* 1*s.*, and by applying not later than October 9.

OCTOBER 10. — **Rushbourne.** — FARM BUILDINGS.—The Parliamentary Committee of the Kent C.C. invite tenders for the erection of a small set of farm buildings, and alterations, etc., to a cottage. Plans, etc., can be inspected at the cottage, which lies to the west of Rushbourne Manor Farm, on the south side of the road.

* OCTOBER 11.—**Dudley.**—HOSTEL FOR WOMEN.—The Dudley Education Committee invite tenders for a new women's hostel. See advertisement in this issue for further particulars.

OCTOBER 11.—**Halifax.**—WOODEN PAVILION.—The Parks Committee invite tenders for the erection of a wooden pavilion at Akroyd Park Bowling Green. Plans, etc., may be seen, and forms obtained, on application to Mr. James Lord, M.inst.C.E., Borough Engineer, Town Hall, Halifax, upon payment of 1*l.*

OCTOBER 11. — **Merthyr Tydfil.** — HOUSES.—The erection of twenty-two terrace houses in three blocks and six pairs of semi-detached villas, together with the construction of roads, etc., on the Meyrick Estate, Gwaelodygarth Field, for the Grove Building Club. Drawings, etc., can be seen, and form obtained, at the office of Mr. T. Edmund Rees, architect and surveyor, Merthyr Tydfil.

OCTOBER 11.—**Pengam.**—LIBRARY AND INSTITUTE PREMISES.—The erection of a new library and institute, for the Trustees. Plans, etc., may be seen at the offices of the architect, Mr. D. J. Thomas, High-street, Blackwood, Mon., from whom quantities may be obtained on deposit of 1*l.* 1*s.*

OCTOBER 11.—**St. Agnes.**—ADDITIONS AND ALTERATIONS TO FARMHOUSES.—The Small Holdings Committee of the Cornwall C.C. invite tenders for additions and alterations to farmhouses and buildings at Mithian Farm. For plans, etc., apply to the County Land Agent, Public Rooms, Truro.

OCTOBER 11.—**Sheffield.**—SHELTER.—The Tramways Committee invite tenders for the erection of tramway passenger shelter at Fitzalan Market Side. Drawings, etc., may be seen, and quantities and form obtained, on application to the City Architect, Town Hall, Sheffield.

OCTOBER 12.—**Glamorgan.**—NEW SCHOOL, ETC.—The C.C. invite tenders for (1) new Council school, Heolyciw; (2) foundations, etc., for temporary building, Kenfig Hill; (3) additions to the Council school, Llanharan; (4) boundary wall and railings at Porth County School. The plans, specifications, etc., of all the works may be seen or obtained at the offices of Mr. T. Mansel Franklen, Clerk of the C.C., Glamorgan C.C. Offices, Westgate-street, Cardiff.

OCTOBER 12.—**Ormesby.**—STABLE AND PAVING.—The U.D.C. invite tenders for the various works required in the erection of a three-stall stable, and the excavating, draining, etc., of the Council's stable yard. Plans, etc., may be seen, and forms obtained, on application to Mr. Charles Header, Surveyor, Council Offices, High-street, North Ormesby.

* OCTOBER 12. — **Swansea.** — BUILDINGS. — The Glamorgan County Territorial Force Association invite tenders for erecting buildings, etc., at Swansea. See advertisement in this issue for further particulars.

OCTOBER 12.—**Tonyrefail.**—CARETAKER'S OFFICE, ETC.—The Llantrisant P.C. invite tenders for the erection of a caretaker's office and storeroom, and the formation of two new footpaths at Tonyrefail Burial Ground. Plans, etc., may be seen, and forms obtained, on application to the caretaker, Mr Lemuel Evans, 6, Mill-street, Tonyrefail.

OCTOBER 13.—**Edinburgh.**—SCHOOL.—The School Board invite tenders for carrying out the various works required in connexion with the new school at Duncan-street. Plans, etc., may be seen at the office of Mr. J. A. Carfrae, architect, 3, Queen-street.

* OCTOBER 13.—**London, S.E.**—SORTING OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for erection of Sorting Office at Deptford. See advertisement in this issue for further particulars.

* OCTOBER 14.—**Bournemouth.**—SORTING OFFICE AND TELEPHONE EXCHANGE.—The Commissioners of H.M. Works and Public Buildings invite tenders for Parcel Sorting Office and Telephone Exchange, Bournemouth. See advertisement in this issue for further particulars.

OCTOBER 14.—**Ilfracombe.**—PREMISES.—The erection of new premises, 118, High-street, for Mr. T. D. Harding. Plans, etc., may be obtained at the office of Mr. Allen T. Hussell, F.R.I.B.A., Market-square, Ilfracombe.

* OCTOBER 14.—**Tidworth.**—MORTUARY, ETC.—The Secretary of State for War invite tenders for erection of mortuary, disinfecting establishment, etc., at Tidworth. See advertisement in this issue for further particulars.

OCTOBER 15.—**Bridlington.**—VILLA RESIDENCE.—Erection of a villa residence, Marine-drive, for the Misses Golden, of Huddersfield. Plans, etc., may be seen at the office of Mr. Samuel Dyer, architect, Quay-road, Bridlington.

OCTOBER 15.—**Merthyr Tydfil.**—CHAPEL.—The erection of a new chapel at Court-street, Merthyr Tydfil, for the Trustees, "Jerusalem" Baptist Chapel. Plans, etc., may be seen at the office of Mr. T. Edmund Rees, architect and surveyor, Merthyr Tydfil.

OCTOBER 15.—**Redruth.**—REPAIRS.—Tenders are invited for the execution of the works scheduled by the Diocesan Surveyor for the Archdeaconry of Cornwall as required in respect of dilapidations at Redruth Rectory, and the buildings, fences, and gates on the Glebe. Full particulars may be seen on application to the Rev. H. W. Sedgwick, Treslothan Vicarage, Camborne; or at the offices of Messrs. Smith, Paul, & Sitwell, solicitors, Truro.

OCTOBER 16.—**Tredegar.**—HOUSES.—The erection of twenty houses off Brompton-terrace, for the Vale View Building Club. Plans, etc., may be seen at the office of Mr. A. F. Webb, architect and surveyor, High-street, Blackwood.

* OCTOBER 17. — **Chester.** — NEW ANNEXE. — The Committee of Visitors, Upton Asylum, Chester, invite tenders for new annexe for 440 patients. See advertisement in this issue for further particulars.

OCTOBER 17.—**Ilfracombe.**—HOUSE.—Erection of a house at Higher Horne Farm, for Mr. Fred Dadds. Plans, etc., may be obtained at the office of Messrs. Allen T. Hussell, F.R.I.B.A., Market-square, Ilfracombe.

OCTOBER 17.—**Norton Hill, Midsomer Norton.**—HIGHER ELEMENTARY SCHOOL.—Somerset C.C. invite tenders for the erection of a higher elementary school. Plans, etc., may be seen at the office of Mr. William F. Bird, M.S.A., Midsomer Norton, and quantities, etc., may also be obtained.

OCTOBER 17.—**Pentre.**—VILLA.—For erection of villa, for Mr. John Richards. Plans, etc., may be seen at, and form obtained from, the office of Mr. W. D. Morgan, M.S.A., 194, Ystrad-road, Pentre.

OCTOBER 17. — **Talywain and Rhymney.**—ALTERATIONS, ETC.—For carrying out certain alterations, repairs, papering and painting, etc.—(*a*) The Commercial Inn, Talywain; (*b*) the Montague Hotel, Pontypool, for Messrs. A. Buchan & Co., Rhymney. Plans, etc., may be seen either at office of Mr. Thomas Roderick, architect, Aberdare, or at the above houses.

OCTOBER 18.—**Durham.**—COUNCIL SCHOOLS, ETC.—The Education Committee invite sole tenders for new Council schools at Benfieldside and Hetton-le-Hole, Cookery Centre at Norton, alterations and additions at Ushaw Moor Council school. Plans, etc., may be seen, and quantities obtained, as follows:—(1) Benfieldside, Hetton-le-Hole, and Ushaw Moor alterations at the office of Mr. V. Rushworth, Shire Hall, Durham; (2) Norton cookery centre, at the office of Mr. N. Richley, Shire Hall, Durham.

OCTOBER 18.—**East Ham.**—PLAYSHED.—The Education Committee invite tenders for the erection of a playshed at Walton-road Council school. Plan may be seen, and quantities obtained, at the office of the Architect to the Committee, Mr. R. L. Curtis, 11 and 12, Finsbury-square, E.C.

* OCTOBER 18. — **London.** — CENSUS OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for enlargement of the Census Office, consisting chiefly of iron buildings. See advertisement in this issue for further particulars.

OCTOBER 18. — **Ynysddu, Mon.**—POLICE-STATION.—The Standing Joint Committee invite tenders for the erection of a police-station. Plans, etc., may be seen at the office of Mr. William Tanner, F.S.I., County Surveyor, Newport, Mon., and quantities obtained on payment of 1*l.* 1*s.*

OCTOBER 19.—**Caersws.**—CHAPEL.—New chapel for the C.M. Church. Plans, etc., may be inspected on written application, to be accompanied by deposit of 1*l.* 1*s.*, from Mr. R. W. Davies, M.S.A. architect, etc., Dolafon, Carno.

* OCTOBER 19.—**Woolwich.**—SOLDIERS' QUARTERS.—The Secretary of State for War invite tenders for married soldiers' quarters at Artillery-place, Woolwich. See advertisement in this issue for further particulars.

OCTOBER 21.—**Handsworth.**—SCHOOL.—The West Riding Education Committee invite whole or separate tenders for the Handsworth intake new infants' school. Plans may be seen, and specifications, with quantities, obtained, on application to the Education Architect, County Hall, Wakefield. 1*l.* in each case must be sent by separate letter to the West Riding Treasurer, County Hall, Wakefield.

OCTOBER 21.—**Wales.**—SCHOOL ALTERATIONS AND ADDITIONS.—The West Riding Education Committee invite whole or separate tenders for alterations and additions to Wales Council School. Plans may be seen, and specifications, etc., obtained, on application to the Education Architect, County Hall, Wakefield. 1*l.* in each case must be sent by separate letter to the West Riding Treasurer, County Hall, Wakefield.

* OCTOBER 29.—**Manchester.**—SCHOOL.—The Manchester Education Committee invite tenders for erection of Gibbon-street Municipal School, Ardwick, Manchester. See advertisement in this issue for further particulars.

* NOVEMBER 1.—**Isleworth.**—BUILDING WORKS.—The Brentford Guardians invite tenders for building

BUILDING—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

works at Workhouse, infirmary, and schools in Twickenham-road. See advertisement in this issue for further particulars.

No Date.—**Askern.**—Alterations to House.—Whole tenders required for alterations to house, for Mr. Alfred Stubbs. Plans can be seen, and specification obtained, at the office of Mr. H. J. Ward, architect, 6, Priory-place, Doncaster.

No Date.—**Buckie.**—Villas.—For the various works required in the erection of several villas. Plans may be seen at the Commercial Hotel, Buckie, and quantities obtained on application to Messrs. Sutherland & George, architects, Aberdeen.

No Date.—**Dinas Powis.**—Cottages.—Proposed block of four cottages at Eastbrook, for Mrs. A. Thomas. Plans may be seen at office of Mr. T. Edgar Smith, architect and surveyor, 29, St. Mary-street, Cardiff, and bills of quantities obtained on deposit of 1*l.* 1s.

No Date.—**Wetherby.**—Golf Clubhouse.—Erection of a golf clubhouse. Quantities may be obtained at the offices of Messrs. Oliver & Dodgshun, architects, 18, Park-row, Leeds.

ENGINEERING, IRON, AND STEEL.

October 11.—**Ynysybwl.**—Iron Fencing.—Mountain Ash U.D.C. invite tenders for the supply and delivery (at Ynysybwl, Taff Vale Railway) of 600 yds. of patent self-adjusting, unclimbable, wrought-iron fencing. Specification and detail drawings of fence may be seen at the office of Mr. W. G. Thomas, Surveyor, Town Hall, Mountain Ash.

October 12.—**India.**—Iron Bars, etc.—The East Indian Railway Company invite tenders for the supply and delivery of (1) mild steel plates, bars, and beams; (2) wrought-iron bars, as per specifications, to be seen at the company's offices, Nicholas-lane, London, E.C. For each specification a fee of 1*l.* 1s. is charged (not returnable).

October 12.—**London.**—Steam Tubes and Fittings.—The Commissioners of His Majesty's Works and Public Buildings invite tenders for the supply of steam tubes and fittings. Particulars, etc., may be obtained on application to the Storekeeper, H.M. Office of Works Engineers' Stores, 20, Newington-butts, S.E.

October 14.—**London.**—Heating Apparatus.—The Commissioners of His Majesty's Works and Public Buildings invite tenders for the supply of steam and hot-water heating accessories. Particulars, etc., may be obtained on application to the Storekeeper, H.M. Office of Works Stores, 12, Lambeth Palace-road, S.E.

October 15.—**Southampton.**—Steam Disinfector.—The Corporation invite tenders for the supply and erection of a steam disinfector, with all fittings, etc., at West Quay. Conditions may be inspected, and specification and form obtained, at the Borough Engineer's Office, upon production of the Borough Treasurer's receipt for a deposit of 1*l.* 1s.

October 17.—**Halifax.**—Electrical Plant.—The Tramways and Electricity Committee invite tenders for the supply of plant (three contracts). Specifications may be seen, and forms obtained, on application to Mr. W. M. Rogerson, M.Inst.E.E., Borough Electrical Engineer, Electricity Works, Foundry-street, Halifax, upon payment of the sum of 10*l.* for each contract.

October 18.—**Cowes.**—Foreshore Reclamation.—The U.D.C. invite tenders for reinforced concrete and other works in connexion with the reclamation of a portion of the foreshore, Medina-road. Drawings may be seen, and further particulars obtained, at the office of Mr. John W. Webster, Engineer and Surveyor to the Council.

October 19.—**Chester-le-Street.**—Electric Installation.—The R.D.C. invite tenders for the installation of electric light, power, and ventilating fan at their Infectious Diseases Hospital, and for the erection of overhead single phase transmission line. Names and addresses, together with a deposit of 10s. 6d., to Mr. R. V. Dickinson, Clerk to the Council, Union Offices, Chester-le-Street.

October 19.—**Lewisham.**—Iron Fencing.—The B.C. invite tenders for the supply and delivery to Lewisham Junction Station, South-Eastern Railway, of about 162 yards of unclimbable wrought-iron fencing. Drawings may be seen, and forms obtained, at the Town Hall, Catford (Surveyor's Department), on and after the 10th inst. Conditions, etc., will be furnished on payment of 5s (not returnable).

October 20.—**Malta.**—Cast-iron Pipes.—The Receiver-General and Director of Contracts invites tenders for the supply of galvanised cast-iron pipes. Particulars, specification, etc., may be obtained on application to the Crown Agents for the Colonies, Whitehall-gardens, London.

* November 1.—**Isleworth.**—Engineering Work.—The Brentford Guardians invite tenders for engineering work at Workhouse, infirmary, and schools in Twickenham-road. See advertisement in this issue for further particulars.

* November 1.—**Isleworth.**—Well and Pumping Plant.—The Brentford Guardians invite tenders for sinking a well at their institutions in Twickenham-road. See advertisement in this issue for further particulars.

November 7.—**Eastbourne.**—Air-compressing Machinery, Boilers, Air Lift, Ejectors, etc.—The Highways and Drainage Committee invite tenders for the supply and erection complete of one set of horizontal, high-speed, compound, non-condensing steam engine air compressors; one set of two Babcock & Willcox water-tube boilers; one automatic air lift; one automatic sewage ejector. Plans and conditions may be seen, and specification obtained, at the Borough Engineer's Office on receipt of a deposit of 5*l.* 5s.

December 1.—**Toome.**—Repair of Weir.—The Lower Bann Navigation Trustees invite tenders for the repair of Toome Weir, including the removal of about 267 lin. yds. of the existing timber crest, and the substitution of a reinforced concrete crest. Plans, etc., may be seen, and specification, etc., obtained, upon deposit of 2*l.* 2s., at the office of the engineers, Messrs. Swiney & Croasdaile, MM.Inst.C.E., Avenue-chambers, Belfast.

MISCELLANEOUS.

October 11.—**Adlington.**—Carting.—The U.D.C. invite tenders for the loading and carting away of sludge from the Sewage Disposal Works on Harrison's Farm. Any further information may be obtained from the Surveyor to the Council.

October 11.—**Blaydon.**—Removal of Refuse, etc.—The U.D.C. invite tenders for the removal and disposal of contents of ashpits, etc., at Spen, Barlow, High Thornley, etc. Full particulars may be obtained from Mr. Robert Biggins, at the offices of the Council, Blaydon-on-Tyne, between 9 and 10 a.m.

October 11.—**Horwich.**—Tunnel.—Blackrod U.D.C. invite tenders for driving a tunnel on their watershed in Horwich Particulars can be had by applying at the Council Office. Mr. J. Hutchinson, Clerk, Blackrod.

October 11.—**Norwich.**—Furniture.—The Guardians invite tenders for the supply of furniture, etc., required for the additional rooms of the Nurses' Home at the Workhouse. Particulars can be obtained, and samples seen, on application at the Workhouse. Mr. E. J. W. Huggins, Clerk to the Guardians.

October 12.—**Edinburgh.**—Demolition.—The Corporation invite tenders for the demolition of the old buildings of the slaughterhouses, Fountainbridge, according to plans, which may be seen at the office of Mr. James A. Williamson, A.R.I.B.A., City-chambers, from whom specifications, etc., may be had on personal application.

October 12.—**Liverpool.**—Joinery, Plastering, etc.—The Select Vestry of the Parish of Liverpool invite tenders for (1) Joinery, wood block flooring, plastering; (2) wooden seating, required at the Kirkdale Branch Workhouse. Specifications may be obtained at the office of the Vestry Clerk, Parish Offices, Brownlow-hill.

October 13.—**Wanstead, N.E.**—Electric Lighting.—The West Ham Guardians invite tenders for installing the electric light to the receiving homes in course of erection at Aldersbrook-road. Specification, etc., can be obtained at the office of the architect, Mr. William Jacques, A.R.I.B.A., of 2, Fencourt, E.C., on a deposit of 1*l.*

October 13.—**Woolwich.**—Timber.—The Guardians invite tenders for the supply of about 40 fathoms of new yellow deal and batten ends, for chopping into firewood. Forms can be obtained at the office of Mr. Tom Cutter, Clerk to the Guardians, Union Offices, Woolwich.

October 14.—**Hereford.**—Levelling, etc., Bowling Green.—For levelling and otherwise improving the bowling green on the Castle Green. Specification and information may be obtained from Mr. Bamford, 138, Widemarsh-street, Hereford.

October 14.—**London.**—Wagons.—The Directors of the Hudson's Bay and Pacific Railway Development Company, Ltd., invite tenders for the supply of wagons. Drawings, etc., can be obtained from the Company's purchasing agents, the Dominion Engineering Company, Ltd., Suffolk House, 5, Laurence Pountney-hill, E.C., upon payment of 10*l.* deposit.

October 17.—**Bristol.**—Haulage.—The Sanitary and Improvement Committee invite tenders for stone hauling. Plan can be inspected, and specifications, etc., may be obtained, on payment of 10s., at the office of Mr. T. H. Yabbicom, M.Inst.C.E., City Engineer, 63, Queen-square, Bristol.

October 17.—**Dunmow.**—Steam Rolling.—The R.D.C. invite tenders for the hire of a steam roller. Particulars can be obtained of Mr. A. E. Floyd, Clerk, Dunmow.

October 18.—**East Ham.**—Demolition.—The Education Committee invite tenders for the demolition of the school-house adjoining the boys' department of High-street Council School, and for the removal of the old materials. Particulars may be obtained on application to Mr. H. C. Padgett, Secretary, Education Office, East Ham, E.

October 19.—**Hastings.**—Timber.—The Education Committee invite tenders for the supply of timber to the technical schools. Form of tender may be obtained at the offices of the Committee, 18, Wellington-square, Hastings.

* October 25.—**West Molesey.**—Oak Fencing and Gates.—The East and West Molesey U.D.C. invite tenders for oak fencing and entrance gates at Isolation Hospital. See advertisement in this issue for further particulars.

October 26.—**Haswell, Sunderland.**—Acetylene Lighting.—The P.C. invite tenders for the extension of four lamps for acetylene gas lighting at South Hetton Colliery. Plans, etc., may be seen by appointment. Mr. Thos. Gustard, Clerk, Council Office, Haswell.

PAINTING, etc.

October 10.—**Billericay.**—Whitewashing, etc.—The Guardians invite tenders for cleaning, whitewashing, and painting the interior of the Workhouse infirmary, according to specification to be seen on application to the Master, Union House, Billericay.

October 10.—**Leeds.**—For the painting, etc., to be done at the various blocks at the Union Infirmary, Beckett-street, Leeds. Specifications, etc., may be obtained on application to Mr. Jas. H. Ford, Clerk to Guardians, Poor Law Offices, South-parade, Leeds, or will be sent on receipt of a stamped, addressed foolscap envelope.

October 11.—**Warrington.**—Painting.—The Guardians invite tenders for painting at the Union Workhouse. Specifications, and any information, may be obtained on application to the Master of the Workhouse.

October 12.—**Dowlais.**—Painting.—For painting and other work at the Beehive Hotel, for Messrs. Giles & Harrap, The Brewery, Merthyr. Particulars at No. 112, High-street, Merthyr. Mr. C. M. Davies, M.S.A.

October 13.—**Welshpool.**—Painting, etc.—The Corporation invite tenders for colouring, painting, and other work at the Town Hall and Library. Specifications and other particulars may be obtained from the Borough Surveyor.

October 14.—**Leeds.**—Painting, etc.—The Corporation invite tenders for repairs to the exterior of the Corporation Hotel, Camp-road, and for painting work in connexion therewith, and also for painting the exterior of Cookridge-street Baths, and houses in Portland-crescent. The work is divided into three contracts, and the specifications may be seen, and forms, etc., obtained, at the office of Mr. W. T. Lancashire, City Engineer, Municipal-buildings.

October 18.—**Hastings.**—Painting and Distempering.—The Education Committee invite tenders (from local tradesmen) for inside painting and distempering at several of the schools. Specifications may be obtained at the office of the Borough Engineer, Town Hall, Hastings.

No Date.—**Hull.**—Painting.—The Trustees of certain properties in Louis-street, Albany-street, Londesborough-street, etc., invite tenders for painting of the same. Copy of the specifications may be obtained from Mr. Douglas Chandler, "Parkside," Grimsby.

No Date.—**Rochdale.**—Painting.—Tenders wanted for painting several blocks of property. Mr. Dewhurst, builder, Rochdale.

ROADS, SANITARY, AND WATER WORKS.

October 10.—**Ennis.**—Outfall Sewer.—The Committee of Management of the Ennis District Lunatic Asylum invite proposals for constructing an outfall sewer from the asylum to the tidal river, according to plans and specification, which can be seen at the office of the Asylum. Mr. John Enright, Clerk of Asylum.

October 10.—**Leeds.**—Paving and Flagging.—The Highways Committee invite tenders for the paving and flagging of Hilton-terrace, etc. Drawings may be seen at the City Engineer's Office, Municipal-buildings, and forms of tender, etc., may be obtained, on application at the Highways Office, 155, Kirkstall-road, Leeds.

October 10.—**Wallsend.**—New Roads.—Wallsend and Willington Quay Joint Hospital Board invite tenders for tar-macadam roads at the Wallsend Hospital. Plans may be seen, and quantities obtained, at the office of the Board's Architect, Mr. J. Fleming Davidson, Council-chambers, Willington Quay.

October 11.—**Brockholes.**—Sewers.—The Thurstonland U.D.C. invite tenders for laying sewers at Scar End, Brockholes. Plans may be seen, and the quantities obtained, at the office of Mr. Berry, Architect and Surveyor, 3, Market-place, Huddersfield.

October 11.—**Caerphilly.**—Private Street Works.—The U.D.C. invite tenders for paving, channelling, etc., Railway-street, Llwyncelyn-terrace, etc. Plans, etc., may be seen, and forms obtained, upon depositing 1*l.* 1s. at the office of Mr. Alfred O. Harpur, Engineer and Surveyor, Council Offices, Caerphilly.

October 11.—**Swansea.**—Private Street Works.—The Corporation invite tenders for the execution of private street works in Victoria-street. Plans, etc., may be seen at the office of the Borough Surveyor, 13, Somerset-place.

October 12.—**Earlston.**—Water Supply.—Tenders are invited for the various works in connexion with the construction of storage reservoir and laying 4-in. cast-iron water mains, for the Water Committee. Plans, etc., may be seen at the office of Mr. T. R. Atkinson, C.E., Earlston.

October 12.—**Pontefract.**—Paving.—The Corporation invite tenders for the paving, etc., with granite setts, of Finkle-street. Plan and specification may be seen and form obtained, at the offices of Mr. John E. Pickard, Borough Surveyor, Municipal Offices, Pontefract.

October 14.—**Sketty.**—Sewers.—The Swansea Corporation invite tenders for the construction of pipe sewers, with junctions, manholes, etc. Drawings, etc., may seen at the office of Mr. R. H. Wyrill, Borough Engineer, Guildhall, from whom form and quantities may be obtained.

October 15.—**Aldham.**—Widening Roadways.—The West Riding Highways Committee invite tenders for the widening of the approach roadways to Aldham Bridge. Plans may be seen, and specification, etc., obtained, at the office of Mr. F. G. Carpenter, West Riding Surveyor, County Hall, Wakefield. A deposit of 1*l.* will be required, and cheques, etc., must be forwarded and made payable to the "West Riding Treasurer," County Hall, Wakefield.

October 15.—**Flixton.**—Surface-water Sewer.—The Barton-upon-Irwell R.D.C. invite tenders for laying 42-inch socketed-pipe surface-water sewer and manholes, from Moorside-road to Irlam-road. Plans, etc., may be seen, and quantities obtained, on application to Mr. A. H. Mountain, A.M.Inst.C.E., Surveyor to the Council, 16, John Dalton-street, Manchester.

October 15.—**Yeardsley-cum-Whaley.**—Stoneware Pipe Sewer.—Tenders are invited for the construction of stoneware pipe sewer, with manholes and other works, at Stonebeads, for the Yeardsley-cum-Whaley U.D.C. and the Jodrell Estate. Plan, etc., may be seen, and form, etc., obtained, on application to Messrs. Brady & Partington, civil engineers, Town Hall, Chapel-en-le-Frith, and on payment of 1*l.* 1s.

October 17.—**Bristol.**—Paving.—The Sanitary and Improvement Committee invite tenders for providing and laying paving material. Particulars and forms of tender may be obtained on application to Mr. T. H. Yabbicom, M.Inst.C.E., City Engineer, 3, Queen-square, Bristol, and on deposit of 10s.

October 17.—**Dublin and Navan.**—Paving.—The Directors of the Great Northern Railway Company (Ireland) invite tenders for sett paving and concrete paving on cattle banks at Dublin and Navan Stations. Plans, etc., may be seen, and forms obtained, at the office of Mr. F. A. Campion, Chief Engineer, Amiens-street Terminus, Dublin, and at the District Engineer's Office, Belfast.

October 18.—**Cheshunt.**—Surface-water Drainage.—The U.D.C. invite tenders for the construction of

ROADS, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

of a 12 in. diameter stoneware pipe sewer, together with the necessary manholes, lamphole, etc., in Churchgate. Drawings, etc., may be seen, and quantities obtained, on deposit of 2*l.* 2s., at the office of Mr. J. E. Sharpe, Engineer and Surveyor, Manor House, Cheshunt.

OCTOBER 18.—**Chester-le-Street.**—ROAD WORKS.—The U.D.C. Highways Committee invite tenders for various works required to be done in (1) Ernest-terrace Back, (2) Hemel-street, (3) Hemel-street and Lynn-street Back, (4) Lynn-street, (5) Lynn-street and Thomas-street Back, (6) Thomas-street South Back. Plans, etc., may be seen, and quantities, etc., obtained, on application at the office of Mr. Wm. Ridley, Surveyor.

OCTOBER 18.—**Wealdstone.**—ROAD AND SEWER WORKS.—The U.D.C. invite tenders for making-up and providing proper means for lighting Rising-holme and Newton roads. Plans, etc., may be seen, and quantities, etc., together with all necessary information, can be obtained from Mr. Herbert Walker, C.E., the Surveyor, Council Offices, Wealdstone, on payment of 1*l.* 1s. in respect of each road.

OCTOBER 20.—**Croydon.**—PIPE SEWER.—The R.D.C. invite tenders for the construction of pipe sewer, with manholes, etc., in certain private streets in the parishes of Beddington and Sanderstead. Plans, etc., prepared by Mr. R. M. Chart, F.S.I., Surveyor, can be inspected at the Council's Offices, Katharine-street, Croydon, and quantities, etc., obtained, on depositing the sum of 5*l.*

OCTOBER 20.—**Croydon.**—PRIVATE STREET WORKS.—The R.D.C. invite tenders for making up certain private streets in the parish of Mitcham. Plans, etc., prepared by the Council's Surveyor, Mr R. M. Chart, F.S.I., can be inspected and forms of tender obtained, at his office, Katharine-street, Croydon, on payment of 2*l.*

NOVEMBER 7.—**Dover.**—SEWER AND SURFACE-WATER DRAINS.—The T.C. invite tenders for supplying and constructing a sewer and surface-water drains in the Folkestone-road district; also the construction of manholes, with cross galleries and connecting branch drains, etc. Forms of tender, etc., may be obtained on payment of 5*l.* 5s., and conditions, etc., inspected, at the office of the Borough Engineer, Mr. W. C. Hawke, A.M.Inst.C.E., Maison Dieu House, Biggin-street, Dover, on and after October 17.

NOVEMBER 7.—**Dover.**—SEWERS AND SURFACE-WATER DRAIN.—The T.C. invite tenders for supplying and constructing sewers and a surface-water drain in the Tower Hamlets district; also the construction of manholes and connecting branch drains, etc. Forms of tender, etc., may be obtained on payment of 5*l.* 5s., and conditions, etc., inspected, at the office of the Borough Engineer, Mr W. C. Hawke, A.M.Inst.C.E., Maison Dieu House, Biggin-street, Dover, on and after October 17.

NO DATE.—**Sowerby.**—SETT PAVING.—The U.D.C. invite tenders for 1,200 super. yds. of sett paving. Full particulars from the Surveyor, Mr. Charles Hinchliffe, Town House, Sowerby.

STONES, MATERIAL, AND STORES.

OCTOBER 8-14.—**Sheffield.**—IRONMONGERY.—The Education Committee invite tenders for the supply of ironmongery. Samples may be seen, and forms obtained, on application at the Education Office up to the 8th inst.

OCTOBER 12.—**Padiham.**—FALSE FLOORING FOR BACTERIA BEDS.—The U.D.C. invite tenders for the supply of 2,500 super. yds. of false flooring for bacteria beds, delivered at Simonstone Station. Mr. Gregson, Engineer, Council Offices, Padiham.

OCTOBER 18.—**London.**—MATERIALS.—The Directors of the Great Western Railway invite tenders for the supply of stores (No. 1 group). Specifications, with forms, may be obtained at the office of the Stores Superintendent at Swindon.

OCTOBER 18.—**Wealdstone.**—GRANITE.—The U.D.C. invite tenders for the supply of granite and granite chippings. Samples of material to be supplied must be forwarded to Mr. Herbert Walker, C.E., the Council's Surveyor, Wealdstone.

OCTOBER 20.—**Bishop's Stortford.**—GRANITE.—The U.D.C. invite tenders for the supply of broken granite and granite chippings. Forms of tender can be obtained from Mr. Thos Swatheridge, Clerk, Council Offices, 7, North-street, Bishop's Stortford.

OCTOBER 25.—**Belfast.**—STORES.—The Harbour Commissioners invite tenders for the supply of stores, etc. Forms may be obtained on application to the Harbour Engineer, Harbour Office, Belfast.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*ASSISTANT ROAD SUPERVISOR	Pub. Works Dpt., Nyasa'and	200*l.* per annum, etc.	Oct. 18

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*CONTRACTOR'S PLANT, TIMBER, ETC., BALHAM, S.W.—On the Premises	H. W. Smith	Oct. 11
*PREMISES, WITH OFFICE, ETC., HOUNSLOW.—On the Premises	Horne	Oct. 12
*DEALS, BATTENS, BOARDS, TIMBER, ETC.—Great Hall, Winchester House, E.C.	Churchill & Sim	Oct. 12
*CONTRACTOR'S PLANT, KINGSWAY, W.C.—On the Premises	Venton, Bull, & Cooper	Oct. 12
*MOTIVE PLANT, WOODWKG MCHNRY, PLANT, ETC., MANCHESTER.—On the Prems.	Edwin Haslam	Oct. 12
*BUILDING MATERIALS, CLAPHAM PARK.—On the Premises	E. Hugh Henry	Oct. 13
*CORNER BUILDING SITE, SHAFTESBURY-AVENUE.—At the Mart	Robins, Gore, & Mercer	Oct. 14

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

September 7.—By R. L. ASHTON (at Holsworthy).
Shebbear, Devon.—Allscott Farm and Dipper Mill, 474 a. 1 r. 4 p., f. £9,926

September 13.—By W. GORBUTT (at Gainsborough).
Walkering, Notts.—Point Farm, 259 a. 3 r. 30 p., f. and c. 9,097
Five closes of arable and pasture, 63 a. 1 r. 17 p., f. 2,238

September 15.—By W. GORBUTT (at Epworth).
Epworth, Lincs.—Arable land, 12 a. 1 r. 6 p., f. and c. 400

September 17.—By W. GORBUTT (at Doncaster).
Haxey, Lincs.—Langholme Farm, 406 a. 2 r., f.. 11,815
Owston, Lincs.—Newland Far Farm, 66 a. 0 r. 16 p., f. and c. 2,512
Epworth, Lincs.—Newland Farm, 119 a. 0 r. 32 p., f. 4,172
The factory, f. 310
Cowsitt Hill Farm, 83 a. 2 r. 26 p., f. 2,103
Keifield, Yorks.—Keifield Farm, 66 a. 2 r. 17 p., f. 2,490

By C. R. MORRIS, SONS, & PEARD (at Taunton).
Wilton, Somerset.—Pool Farm, 95 a. 0 r. 3 p., f. 6,520

September 20.—By G. TROLLOPE & SONS (at Ashford).
Rolvenden, Kent.—Part of the Rolvenden Estate, 915 a. 2 r. 2 p., f. 15,945

September 21.—By G. TROLLOPE & SONS (at Tonbridge).
Edenbridge, Kent.—Prettyman's Farm, 76 a. 2 r. 11 p., f. 2,025
Enclosures of pasture, 8 a. 1 r. 20 p., f. 610

September 24.—By BRUTON, KNOWLES, & CO. (at Gloucester).
Newent, Glos.—Newtown, Black House and Cugley Farms, 628 a. 3 r. 9 p., f. 12,170

September 26.—By G. A. MCDOWALL.
Stratford.—1, New-st., f., e.r. 26*l.* 110

By WINTERTON & SONS (at Chasetown).
Burntwood, Staffs.—Rugeley-rd., building land, 2 a. 1 r. 35 p., f. 200
Arable land, 5 a. 2 r. 3 p., f. 160

September 27.—By BROWETT & TAYLOR.
Chigwell.—6 and 8, Hainault-villas, f., y.r. 51*l.* .. 655
Gray's-inn-road.—62, Acton-st., f., e.r. 98*l.* 16r.. 365
Streatham.—96 and 98, New Park-rd., u.t. 13 yrs., g.r. 15*l.*, y.r. 87*l.* 10s. 190
Peckham.—36, Hanover-st., u.t. 36½ yrs., g.r. 10*l.*, w.r. 46*l.* 16s. 130

By HASLETT & DEEPER.
City.—Lower Thames-st., Yorkshire Grey p.h., lease for 49 yrs. at 210*l.* 130
Wood-street, Bell and Birdcage p.h., lease for 36 yrs. at 580*l.* 150
Paddington.—Harrow-rd., Horse and Sacks p.h., lease for 46 yrs. at 250*l.* 540
Islington.—High-st., White Swan p.h., lease for 26 yrs. at 520*l.* 3,010

By MAY & PHILPOT.
Brixton.—80, Loughborough-pk., u.t. 12 yrs., g.r. 8*l.* £135
Clapham.—93, King's-av., u.t. 14 yrs., g.r. 25*l.* 300

By FREDERICK WARMAN.
Bethnal Green.—40A. 42 to 50 (even), Chilton-st. and plot of land f., w.r. 283*l.* 2,000
Gray's-inn-road.—15, Calthorpe-st., u.t. 9 yrs., g.r. 10*l.*, e.r. 107*l.* 115

By WALLER & KING (at Southampton).
Shirley, Hants.—Regents-pk., Clarendon Lodge, f. 1 100
Southampton, Hants.—58 and 60, Commercial-rd. (s.), f., y.r. 91*l.* 10s. 1,100
125, Millbrook-rd. u.t. 948 yrs., g.r. 5*l.* 10s., p. 305

By JOSEPH STOWER (at Waltham Cross).
Cheshunt, Herts.—Accommodation land, 14 a. 1 r. 28 p., f. 700

September 28.—By NORTON, TRIST, & GILBERT.
Gerrards Cross (Bucks.).—Werneth Low, Dancehurst, and Nursing Home, f., y.r. 155*l.* 1,930
Kennington.—St. Mark's-rd., etc., f.g.r. 80*l.*, reversion in 63¼ yrs. 1,075

By G. H. HATFIELD & SON.
Hackney.—13, The Broadway (s.), u.t. 35 yrs., g.r. 6*l.* 10s., y.r. 80*l.* 4s. 650

By JOHN BOTT & SONS.
Herne Hill.—3, Dancecrofts-gdns., f., p. 70

By KNIGHT, FRANK, & RUTLEY (at Banbury).
Brailes, Warwick.—Brailes Estate, 463 a., f.... 11,563

September 29.—By C. C. & T. MOORE.
Hackney.—1 to 7, Alfred-pl., f., w.r. 105*l.* 10s... 450
2 and 3, Alfred-pl., u.t. 23 yrs., g.r. 6*l.*, w.r. 54*l.* 12s. 150
Silvertown.—40 to 50 (even) Andrew-st., f., w.r. 132*l.* 12s. 330
Mile End.—5, 13, and 17, Floreston-st., u.t. 33½ yrs., g.r. 14*l.* 12s. 6d., w.r. 109*l.* 4s. 375

By NEWBON & SHEPHARDS.
New Southgate.—Glenthorne-rd., f.g. rents 72*l.*, reversion in 69 yrs. 1,475
Lee-st., f.g. rents 40*l.*, reversion in 71 yrs. 792
Stoke Newington.—76 and 78, Spencer-rd., u.t. 43 yrs., g.r. 7*l.*, w.r. 6*l.* 12s. 200
Holloway.—42, Pemberton-gdns., u.t. 41 yrs., g.r. 5s., y.r. 45*l.* 405
57 to 65 (odd), Alsen-rd., u.t. 47 yrs., g.r. 20*l.* 10s., w.r. 182*l.* 8s. 385

By STIMSON & SONS.
East Sheen.—342, Upper Richmond-rd., f., e.r. 80*l.* 1,900
Walworth.—37 to 69 (odd), Morecambe-st. (s.), f., w.r. 162*l.* 850
New Kent-road.—46 and 48, Aylifle-st., f., w.r. 40*l.* 8s. 215
Old Kent-road.—22 and 24, Smyrks-rd., u.t. 57½ yrs., g.r. 7*l.*, w.r. 61*l.* 8s. 325
Croydon.—71 and 75, George-st. (s.), f., y.r. 450*l.* 5,050
George-st., plot of land, f. 200
Norwood.—76, Auckland-rd., u.t. 71 yrs., g.r. 18*l.*, y.r. 70*l.* 400

By MARTIN, WHITE, & CO.
Dulwich.—47, Crystal Palace-rd., f., p. 620

By GRIMLEY & SON (at Birmingham).
Wylde Green, Warwick.—Birmingham-rd., Camden House, u.t. 35 yrs., g.r. 17*l.*, p. 350

September 30.—By RIDER & SONS.
Notting-hill.—2, 4, 6, and 12, Ladbroke-rd., f., y. and e.r. 215*l.* £2,281
98, Horbury-cres., f., y.r. 55*l.* 550
12 and 14, Wharf-rd., u.t. 56 yrs., g.r. 12*l.*, w.r. 63*l.* 325
Hammersmith.—77, Nasmyth-st, u.t. 60 yrs., g.r. 5*l.*, w.r. 21*l.* 4s. 195
Acton.—1078, Harrow-rd. (s.), u.t. 70 yrs., g.r. 10*l.*, e.r. 5*l.* 350

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	Per 1000 Alongside, in River.	£ s. d.
Best Stocks		1 12
Picked Stocks for Facings		2 10

Per 1000, Delivered at Railway Depot.	£ s. d.		£ s. d.
Flettons	1 8 0	Double Headers	13 7 6
Best Fareham Red	3 12 0	One Side and two Ends	17 7 6
Best Red Pressed Bracon Facing	5 0 0	Two Sides and one End	18 7 6
Best Blue Pressed Staffordshire	3 15 0	Splays & Squints	15 17 6
Do. Ballnose	4 0 0	Best Dipped Salt Glzd. Str'tch'rs	10 17 6
Best Stourbridge Fire Bricks	3 14 0	Headers	10 7 6
GLAZED BRICKS.		Quoins, Ballnose, and Flats	14 7 6
Best White and Ivory Glazed Stretchers	10 17 6	D'ble Stretchers	16 7 6
Headers	10 7 6	Double Headers	13 7 6
Quoins, Ballnose, and Flats	14 7 6	One Side and two Ends	17 7 6
D'ble Stretchers	16 7 6	Two Sides and one End	18 7 6
		Splays & Squints	15 17 6

Second Quality White and Dipped Salt Glazed, £1 5s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	6 6	per yard delivered.
Thames Ballast	5 0	" "
Best Portland Cement	28 0	per ton, "
Best Ground Blue Lias Lime	19 0	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

Per Ft. Cube.

	s.	d.
BATH STONE—delivered on road waggons, Paddington Depôt	1	4½
Do. do. delivered on road waggons, Nine Elms Depôt	1	8½
PORTLAND STONE (20 ft. average)— Brown Whibbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	1
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	2½

Per Ft. Cube, Delivered at Railway Depôt.

	s.	d.		s.	d.
Ancaster in blocks	1	10	Red Corsehill in blocks	2	2
Bear in blocks	1	6	Closeburn Red Freestone	2	0
Greenhill in blocks	1	10	Red Mansfield Freestone	2	4
Darley Dale in blocks	2	4			

Per Ft. Cube, Delivered at Railway Depôt.

	s.	d.
YORK STONE—*Roach moss (quarry.* Scappled random blocks	2	10

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	
6 in. rubbed two sides ditto, ditto	2	6	
3 in. sawn two sides slabs (random sizes)	0	11½	
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	
1½ in. to 2 in. ditto, ditto	0	6	

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt.

Scappled random blocks	3	0	

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8	
6 in. rubbed two sides ditto	3	0	
3 in. sawn two sides slabs (random sizes)	1	2	
2 in. self-faced random flags	0	5	

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£	s.	d.	In. In.	£	s.	d.
20×10 best blue Bangor	13	2	6	20×10 best Eur'ka unfading green	15	17	6
20×12 ditto	13	17	6	20×12 ditto	18	7	6
20×10 1st quality ditto	13	0	0	18×10 ditto	13	5	0
20×12 ditto	13	15	0	16×8 ditto	10	5	0
16×8 ditto	7	5	0	20×10 permanent green	11	12	6
24×10 best blue Portmadoc	12	12	6	18×10 ditto	9	12	6
16×8 ditto	6	12	6	16×8 ditto	6	12	6

TILES.

At Railway Depôt.

	s.	d.		s.	d.
Best plain red roofing (per 1000)	42	0	Best "Rosemary" brand plain (per 1000)	42	0
Hip and Valley (per doz.)	3	7	Best Ornamental (per 1000)	50	0
Best Broseley (per 1000)	50	0	Hip (per doz.)	4	0
Do. Ornamental (per 1000)	52	6	Valley (per doz.)	3	8
Hip and Valley (per doz.)	4	0	Best "Hartshill" brand, plain sandfaced (per 1000)	50	0
Best Ruabon red, brown, or brindled (Edw'ds) (per 1000)	57	6	Do. pressed (per 1000)	47	6
Do. Ornamental (per 1000)	60	0	Do. Ornamental (per 1000)	50	0
Hip (per doz.)	4	0	Hip (per doz.)	4	0
Valley (per doz.)	3	0	Valley (per doz.)	3	6
Best Red or Mottled Staffordshire do. (Peakes) (per 1000)	51	9	Staffords. (Hanley) Reds or Brindled (per 1000)	42	6
Do. Ornamental do. (per 1000)	54	6	Hand-made sandfaced (per 1000)	45	0
Hip (per doz.)	4	1	Hip (per doz.)	4	0
Valley (per doz.)	3	8	Valley (per doz.)	3	6

WOOD.

BUILDING WOOD. At per standard.	£	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14	0	0	15	10	0
Deals: best 3 by 9	13	10	0	14	10	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	10	0	12	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less than best.		
Battens: seconds	0	10	0	"	"	
2 in. by 4 in. and 2 in. by 6 in.	9	10	0	10	10	0
2 in. by 4½ in. and 2 in. by 5 in.	9	0	0	10	0	0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.		
1 in.	1	0	0	"		
Fir timber: best middling Dantzig or Memel (average specification)	At per load of 50 ft.					
Seconds	5	0	0	5	10	0
Small timber (8 in. to 10 in.)	4	10	0	5	0	0
Small timber (6 in. to 8 in.)	3	17	6	4	0	0
Swedish balks	3	5	0	3	10	0
Pitch-pine timber (30 ft. average.)	2	12	6	3	0	0
	4	10	0	5	5	0

JOINERS' WOOD. At per standard.						
White Sea: first yellow deals, 3 in. by 11 in.	24	10	0	25	10	0
3 in. by 9 in.	22	10	0	23	10	0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	18	0	0
Second yellow deals, 3 in. by 11 in.	19	0	0	20	0	0
" 3 in. by 9 in.	18	0	0	19	10	0
Battens, 2½ in. and 3 in. by 7 in.	14	0	0	15	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	14	0	0	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	1	10	0	12	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	10	0	22	10	0
Do. 3 in. by 9 in.	18	10	0	19	10	0
Battens	14	0	0	15	0	0
Second yellow deals, 3 in. by 11 in.	16	10	0	17	10	0
Do. 3 in. by 9 in.	15	0	0	16	0	0
Battens	11	10	0	12	10	0
Third yellow deals, 3 in. by 11 in.	13	10	0	14	10	0
Do. 3 in. by 9 in.	13	0	0	14	0	0
Battens	10	10	0	11	0	0

WOOD (*continued*).

JOINERS' WOOD (*continued*)— At per standard.	£	s.	d.	£	s.	d.
White Sea and Petersburg— First white deals, 3 in. by 11 in.	15	0	0	16	0	0
" " 3 in. by 9 in.	14	0	0	14	10	0
Battens	11	10	0	12	10	0
Second white deals, 3 in. by 11 in.	14	0	0	15	0	0
" " 3 in. by 9 in.	13	0	0	14	0	0
Battens	10	10	0	11	0	0
Pitch-pine: deals	19	0	0	21	0	0
Under 2 in. thick extra	0	10	0	1	0	0
Yellow pine—First, regular sizes	44	0	0	upwards.		
Oddments	32	0	0	"		
Seconds, regular sizes	33	0	0	"		
Oddments	28	0	0	"		
Kauri Pine—Planks, per ft. cube	0	3	6	0	5	0
Dantzig and Stettin Oak Logs— Large, per ft. cube	0	3	0	0	3	9
Small " "	0	2	6	0	2	6
Wainscot Oak Logs, per ft. cube	0	5	6	0	6	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	8½	0	0	9½
¾ in. do. do	0	0	7	—		
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	10	0	1	1
Selected, Figury, per ft. super as inch	0	1	6	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	0	1	0
Teak, per load	18	0	0	22	0	0
American Whitewood Planks, per ft. cube	0	4	0	0	5	0

Prepared Flooring, etc.—	Per square.					
1 in. by 7 in. yellow, planed and shot	0	13	6	0	17	0
1 in. by 7 in. yellow, planed and matched	0	14	0	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	0	15	0
1¼ in. by 7 in. white, planed and matched	0	13	0	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	0	13	
1 in. by 7 in. " "	0	14	0	0	18	6
¾ in. by 7 in. white " "	0	10	0	0	11	0
1 in. by 7 in. " "	0	12	9	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton.					
Rolled Steel Joists, ordinary sections	£	s.	d.	£	s.	d.
	7	0	0	7	10	0
Compound Girders, ordinary sections	9	0	0	10	0	0
Steel Compound Stanchions	11	0	0	12	0	0
Angles, Tees, and Channels, ordinary sections	9	0	0	10	0	0
Flitch Plates	9	0	0	9	10	0
Cast Iron Columns and Stanchions including ordinary patterns	7	10	0	8	10	0

METALS.

	Per ton, in London.					
IRON—	£	s.	d.	£	s.	d.
Common Bars	8	10	0	9	0	0
Staffordshire Crown Bars, good merchant quality	8	15	0	9	5	0
Staffordshire "Marked Bars"	10	10	0	—		
Mild Steel Bars	8	15	0	9	5	0
Hoop Iron, basis price	9	5	0	9	10	0
" " Galvanised	17	0	0	—		

(*And upwards, according to size and gauge.)

Sheet Iron Black— Ordinary sizes to 20 g.	9	15	0	—		
" " 24 g.	10	15	0	—		
" " 26 g.	12	5	0	—		
Sheet Iron, Galvanised, flat, ordinary quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	0	0	—		
Ordinary sizes to 22 g. and 24 g.	15	10	0	—		
" " 26 g.	16	10	0	—		
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g.	18	0	0	—		
" " 22 g. and 24 g.	18	10	0	—		
" " 26 g.	20	0	0	—		
Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 8 ft. 20 g.	14	10	0	—		
" " 22 g. and 24 g.	14	15	0	—		
" " 26 g.	16	5	0	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	0	0	—		
Best Soft Steel Sheets, 2 g. & 24 g.	13	0	0	—		
" " 26 g.	15	0	0	—		
Cut Nails, 3 in. to 6 in. (Under 3 in., usual trade extras.)	10	10	0	11	0	0

LEAD, &c.

	Per ton, in London.					
	£	s.	d.	£	s.	d.
LEAD—Sheet, English, 4lb. and up.	16	5	0	—		
Pipe in coils	16	15	0	—		
Soil pipe	19	15	0	—		
Compo pipe	19	15	0	—		
ZINC—Sheet— In casks of 10 cwt.						
Vieille Montagne	29	2	6	—		
Silesian	28	15	0	—		

Zinc, in bundles, 1s. per cwt. extra.

COPPER— Strong Sheet per lb.	0	1	0	—		
Thin " "	0	1	1	—		
Copper nails "	0	0	10	—		
Copper wire "	0	0	10	—		
BRASS— Strong Sheet "	0	0	11	—		
Thin "	0	1	0	—		
TIN—English Ingots "	0	1	6	—		
SOLDER—Plumbers' "	0	0	7	—		
Tinmen's "	0	0	9	—		
Blowpipe "	0	1	0	—		

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

15 oz. thirds	2½d.	26 oz. fourths	3d.
" fourths	1½d.	32 oz. thirds	5d.
21 oz. thirds	3d.	" fourths	4½d.
" fourths	2½d.	Fluted Sheet, 15 oz.	3½d.
26 oz. thirds	4d.	" 21 oz.	4½d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

¼ Hartley's	2d.	Figured, Oxford Rolled, & Oceanic	
⅜ "	2½ d.	Glass, white	3½d.
½ "	2¾ d.	Ditto, tinted	5d.

OILS, &c.		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	3	9
" " " in barrels	"	0	3	10
" " " in drums	"	0	4	0
Boiled " in barrels	"	0	4	0
" " " in drums	"	0	4	3
Turpentine in barrels	"	0	4	5
" in drums	"	0	4	7
Genuine Ground English White Lead	per ton	20	10	0
Red Lead, Dry	"	20	0	0
Best Linseed Oil Putty	per cwt.	0	10	0
Stockholm Tar	per barrel	1	13	0

VARNISHES, &c.	Per gallon.		
	£	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	0
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	0
Fine Elastic Carriage	0	12	0
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	14	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flating Varnish	0	18	0
White Pale Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	0
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	9
French and Brush Polish	0	10	6

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursday*. [N.B.—We do not publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

BARGOED (Glam.).—For the erection of additions to the Bargoed Boys' School, for the Glamorgan Education Committee. Mr. D. Pugh-Jones, F.S.I., County Architect, Cardiff:—

S. Shail	£542	D. Williams, Deri, Glam.*	£429
W. Williams & Son	465		

BARKING.—For Morers-lane widening (1st portion), for the Urban District Council. Mr. C. F. Dawson, Surveyor, Public Offices, Barking:—

D. & T. Jackson, Ripple-road, Barking* £1,513 6 6

BARKING.—For carrying-out private street works in Gordon-road and Salisbury-avenue, for the Urban District Council. Mr. C. F. Dawson, Surveyor, Public Offices Barking:—

Parsons & Parsons, Ilford Wharf, Ilford*, £610 14 1

BEDLINOG (Glam.).—For the erection of a new Girls' Council School at Bedlinog, for the Glamorgan Education Committee. Mr. D. Pugh-Jones, F.S.I., County Architect, Cardiff:—

Hamilton & Millard, Caerphilly* £7,180

BILTON.—For works of sewerage and sewage disposal, for Rugby Rural District Council. Mr. T. W. Willard, Surveyor to Council, Rugby:—

A. Hill & Co., Habberley-road, Kidderminster* £1,030 16

[Four other tenders.]

CAERPHILLY (Glam.).—For the erection of a new higher elementary school at Caerphilly, for the Glamorgan Education Committee. Mr. D. Pugh-Jones, F.S.I., County Architect, Cardiff:—

W. Williams	£11,980 0 0	Hamilton & Millard	£9,650 0 0
F. W. Lougher & Co.	10,528 10 6	T. F. Howells	9,491 7 4
D. Davies & Sons	10,300 0 0	F. Bond, Beda-road, Cardiff*	9,447 2 4
G. Beames	10,098 0 0	R. Jones	9,015 2 6
J. Williams	9,950 0 0	J. Hancock	8,691 6 9
S. Shail	9,900 0 0		

CANNING TOWN.—For the erection of the Gainsborough-road School for 1,500 children, for West Ham Education Committee. Mr. William Jacques, A.R.I.B.A., Architect to the Committee, 2, Fen-court, Fenchurch-street, E.C.:—

			Extra if plastering walls in lieu of dinging.		
Leslie & Co.	£25,795	....	£144	0	0
A. Monk & Co.	25,520	....	198	0	0
C. Wall, Ltd.	25,321	....	331	0	0
J. Longley & Co.	24,985	....	245	0	0
Patman & Fotheringham, Ltd.	23,943	....	50	0	0
Fitch & Cox	23,590	....	296	0	0
Spencer, Sante, & Co., Ltd.	22,930	....	178	0	0
Brand, Pettit, & Co.	22,793	....	150	0	0
S. E. Moss	22,632	....	116	5	6
G. E. Wallis & Sons, Ltd.	22,587	....	179	0	0
W. Lawrence & Sons	22,472	....	200	0	0
F. Willmott	22,312	....	140	0	0
H. F. Webb & Co.	21,864	....	152	0	0
E. E. Nightingale	21,672	....	103	0	0
W. J. Maddison	21,100	....	235	0	0
F. J. Coxhead	20,978	....	93	10	0
H. C. Horswill	20,963	....	94	0	0
A. E. Symes, Stratford*	20,477	....	129	0	0

‡ Tender form states £80 less.

COPPUL.—For the reconstruction of Spendmore-lane, for Chorley Rural District Council. Mr. Percival Whalley, District Surveyor, High-street, Chorley:—

T. Hindley, Leigh £938 4 2

FRINTON-ON-SEA.—For sea wall, etc., for the Urban District Council. Mr. E. M. Bate, Surveyor to the Council:—

A. E. Farr, Frinton-on-Sea.* £10,880

[Full list published in our issue for September 24.]

FRITHVILLE.—For alterations to the Council school, for Lindsey County Council Education Committee. Messrs. Scorer & Gamble, architects, Bank-street-chambers, Lincoln. Quantities by architects:—

Emerson Bros..	£703	10	0
C. Hensman & Sons	723	0	0
H. W. Parker & Son	650	0	0
F. Scarborough	594	0	0
Hollingsworth Bros. ..	591	12	4
Pett & Bonfield	589	0	0
J. T. Barber....	588	0	0
F. Peck	583	0	0
J. Leafe & Sons	£570	0	0
J. Sargeant & Sons	563	12	0
K. Miller & Son	549	15	0
J. B. Belton & Co.	547	10	0
J. W. Darby ..	525	0	0
M. H. & J. W. Allen Bros., Wrangle, Boston	512	9	10

GABALFA (near Cardiff, Glam.).—For the erection of a new infants' school at Gabalfa, near Cardiff, for the Glamorgan Education Committee. Mr. D. Pugh-Jones, F.S.I., County Architect, Cardiff:—

Knox & Wells, Cardiff* £2,803 4 3

GREENWICH.—For paving portion of Ransom-road, for the Borough Council:—

H. Woodham & Sons £657
J. Mowlem & Co., Ltd., Grosvenor Wharf, Westminster* 590

HANDSWORTH (Staffs).—For Holdford-road and Ventnor-place sewering, for the Urban District Council. Mr. H. Richardson, A.M.Inst.C.E., Engineer and Surveyor to Council:—

S. Wood, Birchfield-road, Handsworth* .. £450

KING'S LYNN.—For the erection of a new elementary school on the Paxton-terrace site, for the Education Committee. Mr. J. R. Cornell, architect, Paradise-parade, King's Lynn. Quantities by architect:—

A. F. Foreman & Sons	£7,482	19	3
H. W. Barnes & Co.	7,449	0	0
S. Holden & Sons	7,400	0	0
G. E. Hawes & Son	7 395	0	0
Hall & Lawson	7,311	4	0
W. Saint	7,149	0	0
Read & Wildbur	6,999	0	0
D. Gray	£6,992	19	6
J. Hurn & Sons	6,980	0	0
J. Youngs & Son	6,965	0	0
Dye & Allen..	6,848	0	0
F. & S. Dickenson	6,847	0	0
T. Ives & Son	6 757	10	1
J. Cracknell ..	6,573	0	0
R. Shanks, Hunstanton and Chatteris* ..	6,565	0	0

LEYTON.—For making-up, etc., certain private streets, for the Urban District Council. Mr. William Dawson, M.Inst.C.E., Council's Surveyor, Town Hall, Leyton:—

Griffiths & Co.	£2,155	6	3
H. S. Nunn ..	2,055	9	1
G. J. Anderson	1,956	16	3
O. T. Gibbons..	1,952	11	4
A. W. Porter.	£1,931	18	8
F. J. Coxhead	1,920	0	0
W. Manders, Leyton* ..	1,823	0	10

OCKFORD (near Godalming).—For the erection of new pumping-station buildings. Mr. J. H. Norris, Borough Surveyor and Water Engineer, Municipal Buildings, Godalming:—

Humphreys & Son..	£1,145		
Mitchell Bros.	875		
Milton & Sons	875		
D. Fry	874		
Chapman, Loury, & Pullock, Ltd.....	874		
Crossby & Co.	870		
Chapman & Co.....	£850		
Cook & Sons	849		
Drowley & Co.	849		
J. B. Seward	839		
Gathercole Bros., Norbury*	80		

PENRITH.—For constructing roads and sewers in certain streets (Contract No. 8). for the Urban District Council. Messrs. Brierley, Holt, & Co., engineers, Blackburn and Blackpool:—

Exors. of W. Grisenthwaite, Penrith*.. £1,312 4 6

PINNER.—For five pairs of semi-detached houses, for the West-end Park Estate Company. Mr. J. E. Henderson, architect, West-end-avenue, Pinner:—

Milsom & Booth, Pinner* £5,570

SITTINGBOURNE.—For erecting temporary building at the County School for Girls, for Kent Education Committee. Mr. Wilfred H. Robinson, Architect to the Committee:—

F. Smith & Co. ..	£703	0	
Ginger, Lee, & Co.	698	10	
J. McManus.....	590	0	
W. Harbrow	587	0	
L. Seager	540	0	
T. Monk	£537	0	
H. J. Tidy	512	0	
L. R. Pavey	497	0	
G. Bowes, Milton Regis‡	446	10	

‡ Recommended for acceptance.

SLAITHWAITE.—For erecting two semi-detached residences. Messrs. Ainley & Hirst, architects, Slaithwaite. Quantities by architects:—

Mason: J. Shaw, Slaithwaite.....	£3 0
Joiner: J. Lawton, Slaithwaite	150
Plumber: E. Rayner, Milnsbridge.....	80
Tiler: W. J. W. Rimmer, Slaithwaite	45
Plasterer and Painter: B. A. Sutcliffe, Slaithwaite	35
Concreter: J. Cooke. Huddersfield	15

TRAEDYRHIW (near Merthyr).—For rebuilding the "Fox and Hounds" Inn and three shops, for executors of Christmas Evans, Heolgerrig Brewery. Mr. C. M. Davies, architect, Merthyr Tydfil:—

J. Williams..	£2,134	4	6
J. Jenkins ..	2,051	0	0
Jones Bros...	1,850	0	0
W. Thomas, 14, Wells-street, Merthyr* ..	£1,800	0	0

TUNBRIDGE WELLS.—For paving, etc., lower part of Woodland-road, Grosvenor Wood, for the Corporation. Mr. W. H. Maxwell, A.M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Tunbridge Wells:—

The Road Maintenance and Stone Supply Co., Ltd., The Crescent, Gravesend £742 7 10

WALLINGFORD.—For the erection of hygienic bakery, High-street, Wallingford, for Mr. Thomas Gibbons. Mr. Edwin G. Hearness, architect and surveyor, Gerrard's Hall, Wallingford. Quantities by architect and surveyor:—

	If Bakery Interior White Glazed Bricks.	If Plastered Walls.
Bosher & Son	£320 13 4	£286 17 10
Smallbone & Son	305 0 0	267 10 0
Brasher & Son	292 14 7	251 19 7
Naish & Sons, Wallingford*	280 0 0	250 0 0

WANSTEAD.—For making-up Seagry-road, for the Urban District Council. Mr. C. H. Bressey, Surveyor:—

J. Mowlem & Co.	£488	0	0
P. R. Paul	475	0	0
D. T. Jackson ..	472	5	6
G. Bell & Son ..	449	0	0
Parsons & Parsons	419	0	0
G. J. Anderson ..	396	0	0
W. Manders	£371	0	0
W. Griffiths & Co.	365	0	0
T. Adams	360	0	0
W. & C. French, Buckhurst Hill, Essex*	355	0	0

[Surveyor's estimate, £411.]

WEST HAM.—For painting, etc., various public buildings, for the Borough Council. Mr. John G. Morley, Borough Engineer, Town Hall, West Ham, E.:—

A. R. Brand..	£1,203	15	4
G. Clutterbuck	1,095	13	2
J. S. Fenn ..	952	3	7
J. Stoneley & Co.....	887	10	0
W. G. Beanmont & Sons	878	10	0
J. Stokes & Son	845	11	11
E. Lovely ..	780	0	0
J. W. Jerram ..	£767	10	0
R. Woollaston & Co.	745	0	0
J. Barker & Co..	704	11	0
E. Burns & Co., Plaistow*	697	0	0
W. Upton & Co.	444	3	0
G. H. Smith	281	6	0
R. Tucker.....	196	0	0

RYE.—For Rye International Stores. Messrs. G. Baines & Son, 5, Clement's Inn, Strand, London, W.C.:—

—	Estimate A.	Estimate B.	Estimate C.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
J. Lewis & Sons	1,670 0 0	70 15 0	202 14 0	1,943 9 0
S. Harvey.....	1,498 10 0	98 0 0	289 0 0	1,885 10 0
Bainbridge & Son	1,495 0 0	91 0 0	297 0 0	1,883 0 0
G. Burnham & Son.....	1,430 0 0	110 5 0	310 0 0	1,850 5 0
Ellis Bros.	1,398 0 0	93 15 6	294 0 0	1,790 15 6
C. Horsell.....	1,404 0 0	117 0 0	232 0 0	1,753 0 0
H. Knock.....	1,275 0 0	63 15 0	275 0 0	1,613 15 0
Fuller & Sons	1,259 9 6	87 1 6	250 7 2	1,596 18 2
Hutchinson & Co.	1,098 0 0	98 0 0	302 0 0	‡1,498 0 0

‡ Accepted with modifications.

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